HOUSING THE UMM AN-NAR:

THE SETTLEMENTS AND HOUSES OF BAT

by
Jennifer Swerida

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ABSTRACT

Settlements, as the primary stages for socioeconomic interaction, are essential sources of information concerning the lifestyles and social organizations of their occupant populations. Yet, the settlements of the first phase of widespread sedentary occupation on the Oman Peninsula, the Umm an-Nar Period (ca. 2800-2000 BCE), have so far been understudied by archaeologists. This dissertation explores Umm an-Nar settlement and domestic traditions as found at the UNESCO World Heritage Site of Bat, in the Sultanate of Oman. Through a multi-scalar study of Bat's Umm an-Nar settlement remains, three broad research questions are addressed:

(1) How should large, multi-towered Umm an-Nar sites be interpreted – as single, large communities; or as multiple, independent settlements?

(2) What does the spatial organization of Umm an-Nar settlements suggest about the social organization of the community(s) that occupied them?

(3) Is the Umm an-Nar lifestyle and social organization represented by the remains at Bat comparable to that reconstructed at settlements elsewhere on the Oman Peninsula?

Qualities of Umm an-Nar social organization are reflected in the distribution of sites across the landscape and in the organization of built and unbuilt space within settlements. Methodologies developed in this dissertation engage with architectural remains that are visible on the modern ground surface in order to identify social connections between sites and internal community organization. Such methods access valuable social information in the absence of well-preserved settlement contexts. Bat's Umm an-Nar population is revealed as an extended community that incorporated multiple centers of occupation and was organized into social sub-groups.

The socioeconomic foundations of any society are found in its households. A set of methodologies adapted from household archaeology are used to identify Umm an-Nar house structures in excavated settlement contexts at Bat. The compositions, economies, and lifestyles of individual households are reconstructed based on house layouts and surviving evidence of domestic activity. These households reflect a society that was organized into small, economically independent groups that contrast with coastal Umm an-Nar communities.

Advisor: Glenn Schwartz

Committee Chair: Benjamin Zaitchik

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To Mom and Dad

And to Dizə

You made an impossible task possible.

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CHAPTER 1:

INTRODUCTION

1.1 Introduction

At the dawn of the Early Bronze Age (ca. 3200-2000 BCE), the Oman Peninsula was a landscape apparently populated by nomadic or semi-nomadic pastoralists (the so-called Hafit culture; ca. 3200-2800 BCE) with only scattered traces of (probably seasonal) settlement along coastlines or in oases.[1] This picture changed dramatically in the Umm an-Nar Period (ca. 2800-2000 BCE), when the region experienced a proliferation of settlements at a scale and density never before seen on the peninsula (cf. Cleuziou 2002:192; 2003:136-137; 2009; Cleuziou & Tosi 2007:141-148; Magee 2014:98; Potts 1991a:98-100; 2001:39-41; 2008; Tosi 1986). Sites typically featuring collections of rectilinear architecture, communal tombs, and monumental towers gradually spread across the landscape from Tell Abraq on the Arabian Gulf Coast of the United Arab Emirates to Ra's al-Jinz on the coast of the Indian Ocean in the Sultanate of Oman. Yet, the organization and character of the society behind these tombs, towers, and settlements remains vague.

Quintessential among the sites populating the Oman Peninsula's Umm an-Nar landscape is the UNESCO World Heritage Site of Bat (see Fig. 1.1). Located in the western foothills of the Omani Hajar Mountains, the Umm an-Nar occupation of this site left behind a collection of seven known monumental towers, a necropolis of over one hundred communal tombs, and an untold array of occupational remains. The history of

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[1] Examples include Period I of the Hili 8 settlement (cf. Cleuziou 1989a) and the settlement of Ra's al-Hadd on the Ja'alan coast (cf. Azzarà 2009; Cleuziou & Tosi 2000; see also **Chapter 3**).

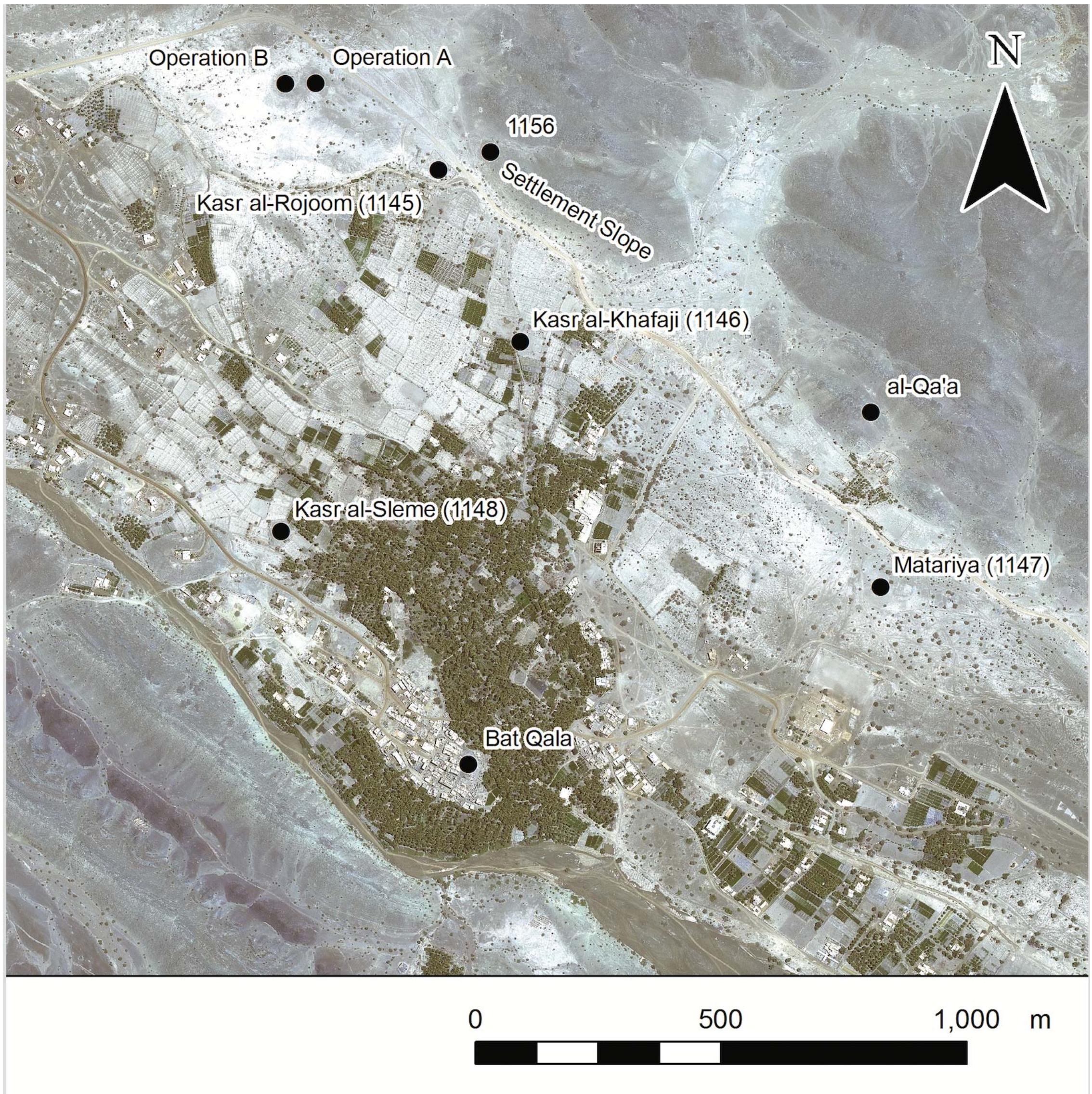

Fig. 1.1: Map of Bat, showing location of settlements, tower monuments, and other key locations (after Thornton & Cable 2016:6, Fig. 1.6).

archaeological scholarship at Bat has paralleled the trends of scholarship in the region. Early, broad spectrum surveys by the Danish Archaeological Mission to Oman (cf. Frifelt 1976; 1985; 2002a) paved the way for targeted research of the site's Umm an-Nar tombs by the German Mission (cf. Böhme 2011; 2012; Böhme & al-Sabri 2011) and tower monuments by the American-led Bat Archaeological Project (cf. Thornton *et al*. 2013;

2016). Reconstructions of Umm an-Nar society at Bat and on the Oman Peninsula as a whole rely primarily on such mortuary and monumental contexts, rather than on the settlement contexts where that society was enacted (cf. Cleuziou 2002; 2003; 2009; Cleuziou & Tosi 2007; Potts 2009; Rouse & Weeks 2011).

The overarching objective behind this dissertation is to shed light onto the nature of Umm an-Nar society as represented in the occupational contexts of Bat's settlement landscape, where the day to day activities of that society were carried out. Through a multi-scalar study of the site's settlement remains, I address three broad research questions:

(1) How should Bat and other large, multi-towered Umm an-Nar sites be interpreted – as single, large communities that tied together several areas of settlement or neighborhoods; or as multiple, independent settlements that were all located in the same general area?

(2) What does the spatial organization of Bat's Umm an-Nar settlements suggest about the social organization of the community or communities that occupied them? In particular, does the settlement organization indicate the same undifferentiated, presumably kin-based social organization that archaeologists have interpreted based on the Umm an-Nar collective tombs?

(3) Is the Umm an-Nar lifestyle and social organization represented by the remains at Bat comparable to that reconstructed at Umm an-Nar settlements elsewhere on the Oman Peninsula?

By considering Bat's settlement remains through such a multi-scalar set of perspectives, I assess the social complexity, organization, and household structure of the site's Umm an-Nar population. I argue that the occupational contexts of Umm an-Nar settlements, especially those found in relation to non-monumental architecture, provide rich sources of socioeconomic information that have so far been underutilized. Rather than assuming a one to one correlation between Umm an-Nar rectilinear architecture and residential houses, as has too often been the case (cf. Cleuziou & Tosi 2007; de Cardi *et al*. 1976; al-Jahwari 2009; al-Jahwari & Kennet 2010; Orchard 2000; Orchard & Stanger 1994; 1999), such structures should rather be considered as a potentially diverse set of built remains that served the multifaceted needs of their inhabiting community.

Bat is particularly well suited for such a study due to the duration of its Early Bronze Age occupation, which stretched without interruption from the Hafit Period through the end of the Umm an-Nar and beyond, and long history of research (cf. Böhme 2011; 2012; Böhme & al-Sabri 2011; Brunswig 1989; Cable 2012; Cattani *et al*. 2017; de Cardi *et al.* 1976; Desruelles *et al.* 2016; Döpper & Schmidt 2013; 2014; Fouache *et al.* 2012; Friflet 1976; 1985; 2002a; Gentelle & Frifelt 1989; Kerr 2016; Kondo 2011; Thornton *et al*. 2013; 2016; Thornton & Schmidt 2015). The interpretation of Bat's lived Umm an-Nar society presented in this dissertation will complement previous studies of the Early Bronze Age culture, which are largely based on its mortuary remains, and contribute to a more balanced reconstruction of the society as a whole.

1.2 The Settlement and the House

Terms such as 'settlement' and 'house' are pervasive in both modern culture and archaeological literature, yet rarely is there a finite definition for either. In general, both terms are used to indicate the location where a group or groups of people reside and interact. However, in order for these entities to be of use in understanding ancient societies, their meanings must be firmly rooted in the physical and social records.

Looking first at the settlement, from an anthropological perspective it is the primary location where a group of people (typically numbering more than a nuclear family) live on permanent or semi-permanent (e.g., seasonal) basis, carry out their daily tasks, process resources, and interact as part of a society – the location that Kent Flannery refers to as a group's "base camp" (1972:25[2]; see also Ashmore 2002; 2005; Flannery 2002; Horne 1994; Kamp 1987; 1993; Kramer 1979; Kuijt 2000; Mershen 1999; Steadman 2000; 2015; Wilkinson 2003). Settlements can also be understood as stages for communal dwelling. As defined by Scott Hutson, 'dwelling' consists of the enactment of expected behaviors or activities within a social and occupational setting (i.e., the settlement) that help to form social bonds, identity, and solidarity among participants (2008:5-8).[3] Hutson suggests that "these actions bring a person into contacts with some actors but not others, with some places but not others, and with some things but not others" (2008:5). Such disparities serve to create and perpetuate a community's social structure (cf. Bourdieu 1977; Giddens 1984; Hodder 1994; Hutson 2008; Ingold 1995).

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[2] This characterization in useful in emphasizing that not all activity took place within the settlement.

[3] Hutson considers 'dwelling' to be the "situated practices that produce social beings" (2008:5).

The physical and spatial structure of a settlement are thus key components in the formation and transmission of culture and social order (Hodder 1990; Hutson 2008; Ingold 1995; Rapoport 1976; 1990).

Physically, settlements are composed of a collection of socially defined spaces, built and unbuilt, that can include houses, communal gathering spaces, multifunctional common areas, corridors of movement, storage areas, specialized spaces intended for specific activities (e.g., craft production areas), and specialized structures (e.g., temples, administrative buildings, defensive structures, monuments, etc.). The exact composition that a settlement takes is ultimately determined by a combination of social, environmental, and historical factors (cf. Adams 1981; Flannery 1972; 2002; Hodder 1990; Horne 1994; Hutson 2008; Kamp 2000; Kramer 1979; Smith 2010; Watkins 2004; Wilson 1988).[4] Yet, settlement organization and composition, as structuring agents in social organization, activity, and identity, are relatively consistent within a given society. Spatial and architectural patterns found in settlements of a certain region and time period thus relate to pervasive characteristics of that society (i.e., form of social organization, degree of socioeconomic complexity, how resources were shared, integration with the wider settlement pattern, etc.; cf. Flannery 1972; 2002; Kent 1990; 1991; Rapoport 1990;

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[4] The first permanent settlements appeared in the Ancient Near East roughly 12,000 years ago, coinciding with the beginning of the Neolithic Revolution and a gradual but fundamental change in how humans interacted with their environment. Ian Hodder suggests that the establishment of the first settlements represent a shift in human perceptions of their place in the world. Instead of viewing themselves as part of the natural world, Hodder argues that settled humans began to conceptualize themselves as “separate from the outside” – a process that he coins “human domestication” (1990:41).

Smith 2003; Steadman 2011). Strategies for accessing such traits through archaeological remains are detailed in **Section 2.3.2** and **Chapter 5**.[5]

Given the diversity found in settlement form and composition over time and space, the identification of such sites in the archaeological record is often a somewhat nebulous process, especially in regions and for periods with a relatively unknown settlement history. In such cases, virtually any location of prolonged occupation on an archaeological landscape can be considered though the guise of a settlement. While a degree of domestic activity and social interaction is assumed at a settlement site, the precise functions of its spaces and structures must be determined on a site-by-site basis. Yet, the multi-functional nature of settlement space and the close association between settlements and domestic occupation brings with it the risk of oversimplification, especially in analyses of sites that have not yet been extensively excavated. Without the detailed examination necessary to determine the function of various spaces, it is tempting to characterize all settlement space as domestic (or relating to household activities) and all settlement structures as houses.[6]

Within a settlement, the most common building type to be found cross-culturally is the house (Carballo 2011; David & Kramer 2001; Flannery 1972; Kent 1990; Kramer 1982b; Lévi-Strauss 1982; Nash 2009; Rapoport 1969; 1982; Wilk & Rathje 1982). A house is a structure that serves as the primary dwelling (and thus socially structuring)

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[5] Telling spatial traits include the location, shape, scale, and organization of a settlement's component spaces and structures. See also **Section 2.4** and **Chapter 5** for more detailed discussions on methodologies and case studies from the Umm an-Nar settlement contexts at Bat.

[6] In order to minimize such potential misrepresentation of Bat's settlements in this dissertation, I routinely recognize the uncertainties in the site's available settlement datasets.

space for the community's basic or smallest social unit – a household.[7] Such structures can be free-standing or part of a larger compound and may incorporate both interior and exterior spaces (e.g., courtyards, rooftops, etc.). Houses, like the settlements they are found within, are multifunctional structures that often provide space for: social gatherings of small groups, protection from the elements, daily subsistence tasks, household storage, and processing of household resources/economic production. Similarly, the physical parameters of a house and the scale and composition of the social household that resides within it are culturally determined and vary significantly through time and space (cf. Allison 1999; Carbello 2011; David & Kramer 2001:284-302; Hendon 2010; Hutson 2008; Kent 1990; Kramer 1982b; Moeller 2015; Rainville 2012; Rapoport 1969; 1982; Steadman 1996; Tringham 2012a; 2012b).

In the archaeological record, a building is identified as a house due to its association with domestic-style activities (e.g., small-scale food production, storage, craft production, waste disposal, etc.). The spatial organization, content, and distribution of materials within a house can be used to interpret qualities of the household's social status, economic/subsistence strategy, division of labor, and even the gender and identity of its residents (cf. Allison 1999; Banning 2003; Carballo 2011; Chesson 2003; Hendon 2004; Hutson 2008; Kent 1990; Nash 2009; Parker 2012; Rainville 2012; 2015; Tringham 1991; 1994; Wilk & Rathje 1982). The numerous strategies for assessing ancient house remains to interpret its household socioeconomic characteristics are discussed in **Section 2.3**.[8]

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[7] See **Section 2.3.2** for further discussion of the household and its relationship with the house.

[8] See also **Chapter 6** for more detailed discussions on methodologies and case studies from the potential Umm an-Nar house contexts at Bat.

However, the process of identifying houses in the archaeological record can be complicated by a number of factors, especially in areas and time periods where the domestic tradition is not yet thoroughly understood. Two such factors particularly relevant to this dissertation are the tendency for potential house structures to contain little material culture[9] and for both houses and other settlement structures to serve multiple functions. Houses may also serve as production space for a specialized craft, while workshops may also include an area for small-scale food production. Until the house tradition of a certain ancient culture is well established in the archaeological literature, it may be more useful to consider which buildings are or are not associated with evidence of domestic activity than to prematurely assign them meaning-laden titles such as house, workshop, or warehouse. In this dissertation, while I offer interpretations of possible building function (i.e., domestic, craft-production, storage, etc.), each identified rectilinear building is assigned a terminologically neutral 'Structure #.'[10]

Methods for analyzing and interpreting ancient settlements and the domestic remains within them have developed with a wide variety of perspectives and strategies. These perspectives range from the broad analysis of settlement patterns across the landscape (cf. Adams 1965; 1981; Casana 2007; Tringham 2012a; Ur 2002; Wilkinson 2003) to the detailed study of micro-debris on house floors (cf. LaMotta & Schiffer 1999; Matthews 2012; Rainville 2005; 2012; Ullah 2012) and many variants in between.

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[9] When houses are abandoned, it is not uncommon for the vacating household to clear them of possessions (Cameron 1991; Kamp 2000).

[10] Bat's settlement buildings are designated as 'Structure' and are assigned a unique number that also indicates which settlement it is located in. The Settlement Slope is designated as 'SS#,' al-Khafaji is designated as 'KA#,' al-Khutm is designated as 'KU#,' and az-Zebah is designated as 'Z#.'

Settlement archaeology and household archaeology can, thus, be understood as existing on a continuum of strategies for studying ancient society and lifestyle. It must be noted that the methods for analyzing and interpreting ancient settlements and houses (or other associated domestic remains) developed out of anthropological and archaeological studies of sites with a high quality of preservation – particularly in Mesoamerica and Mesopotamia (cf. Ashmore 2002; Carbello 2011; Flannery 1972; Hastorf & D'Altroy 2001; Kent 1990; Müller 2015; Nash 2009; Steadman 2000; 2015; Wattenmaker 1998; Wilk & Rathje 1982; Yaeger & Canuto 2000). Yet, in many parts of the world, including the Oman Peninsula, only fragments of ancient settlements and possible houses survive. In such cases, the prescribed archaeological methods must be adapted to best fit the nature of the remains. Throughout this dissertation, I propose a number of strategies for applying such interpretive methodologies to the imperfectly preserved settlement remains found at Bat and elsewhere on the Oman Peninsula (see **Sections 2.4**, **5.3.1**. **5.4.1**, and **6.2**).

1.3 The Oman Peninsula, the Umm an-Nar, and Bat

The Oman Peninsula is located at the southeastern corner of the Arabian Peninsula, where a section of the Arabian subcontinent juts further to the north and east, toward the southeastern coast of Iran, and creates the bottleneck of the Arabian Gulf (see Figs. 1.2 & 1.3). This smaller peninsula is home to the modern nations of the United Arab Emirates and the Sultanate of Oman. The geography of the Oman Peninsula is defined by its coastal mountain chain (the Hajar Mountains) and surrounding bodies of

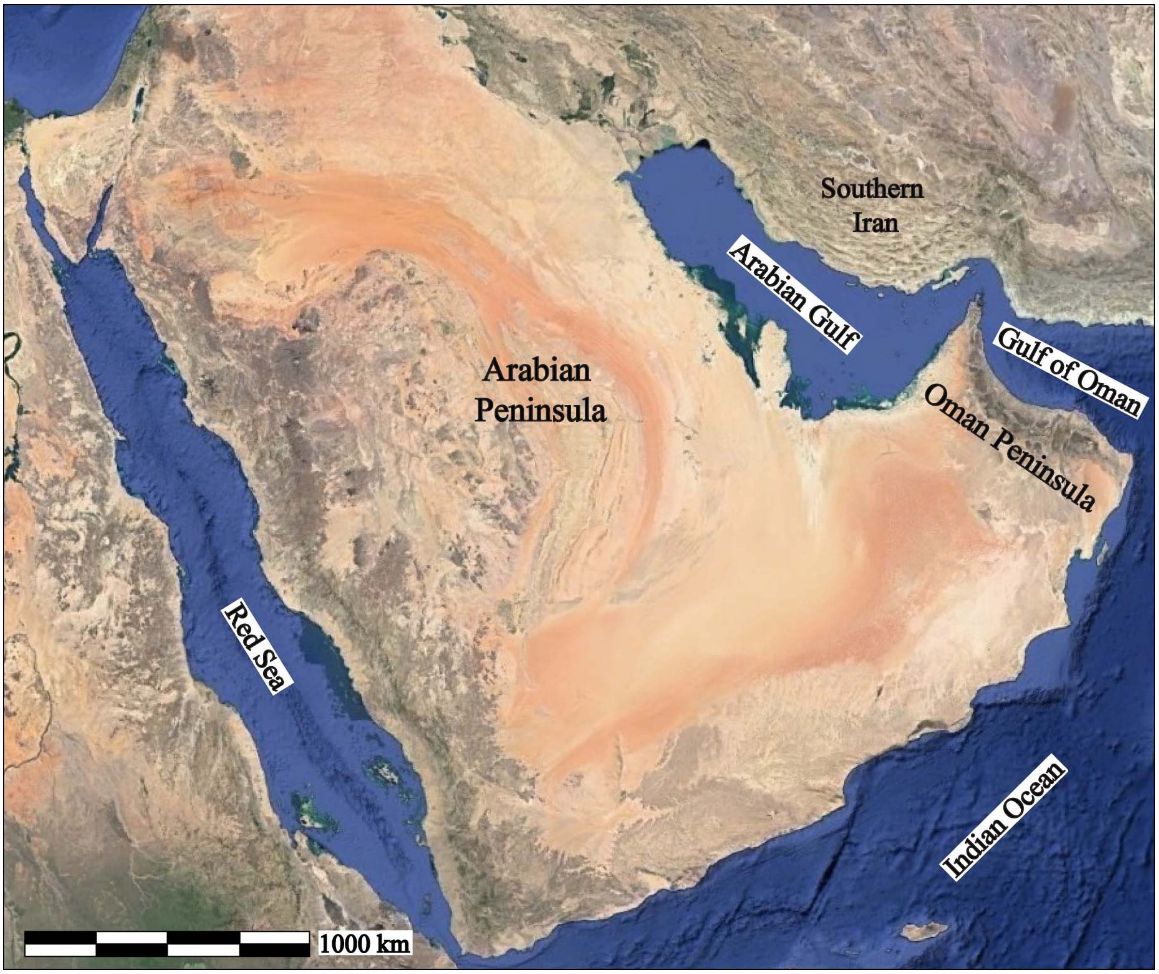

Fig. 1.2: Map of the Arabian Peninsula (Landsat Imagery via GoogleEarth).

water (the Arabian Gulf to the northwest, the Gulf of Oman to the northeast, and the Indian Ocean to the southeast). The Hajar Mountains run the length of the peninsula, from the Straights of Hormuz in the northwest to the Arabian Sea in the southeast. These mountains are an historically important source of mineral resources; including limestone, soft stone (chlorite and steatite), and especially copper. Between the northern edge of the Hajar Mountains and the Gulf of Oman is the narrow but fertile Batinah Coast. Inland, to the mountains' south and west, is a hilly, arid piedmont zone fed by seasonal wadis that gradually grades into the desert of the Rub al-Khali.

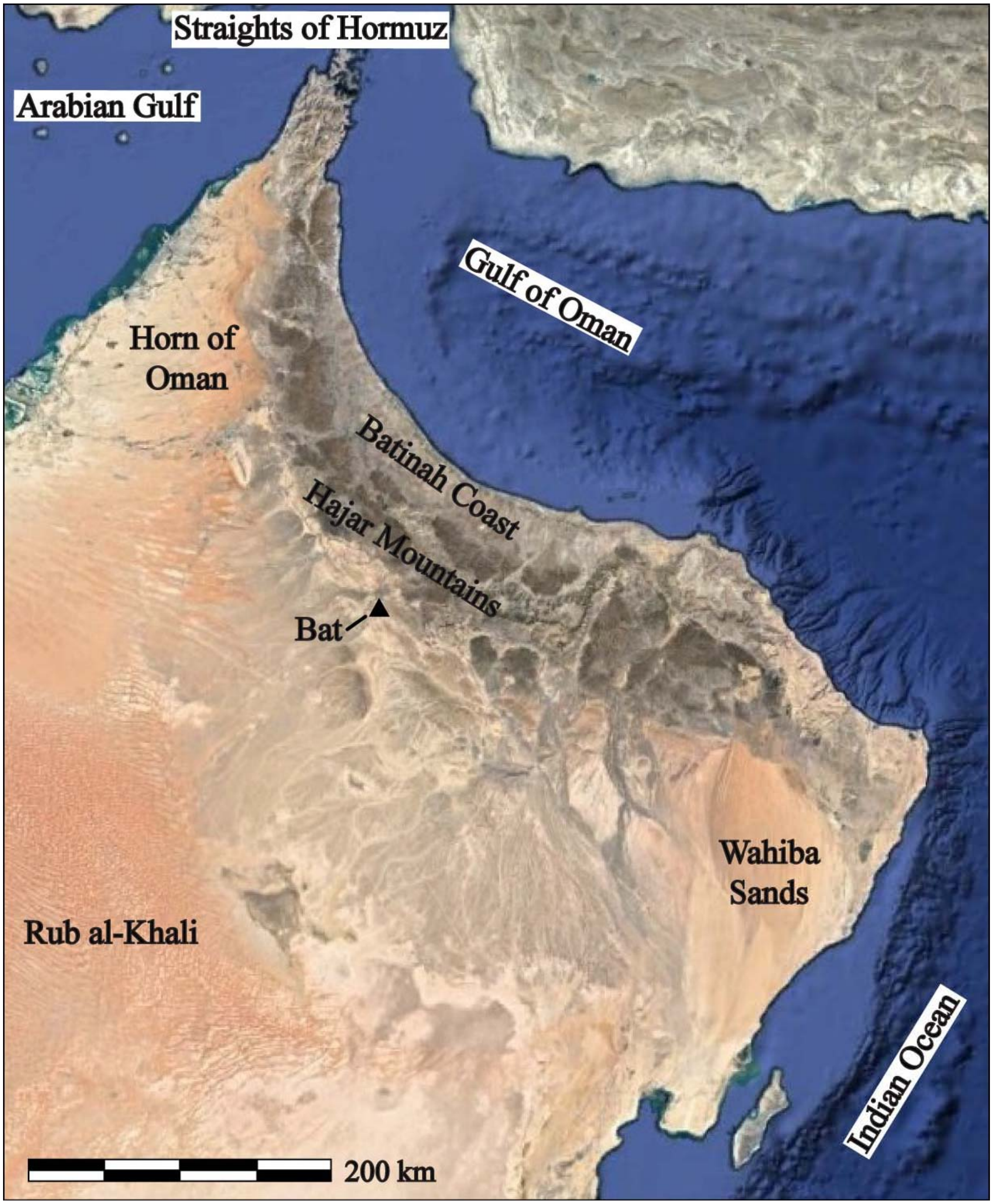

Fig. 1.3: Map of the Oman Peninsula (Landsat Imagery via GoogleEarth).

Within this landscape, the Early Bronze Age population began to organize itself in increasingly complicated ways. In the archaeological record, this process appears as two distinct material culture groups: the Hafit culture (ca. 3200-2800 BCE) and the Umm an-

Nar (ca. 2800-2000 BCE). The Hafit culture is best known through its many thousands of above ground, cairn-shaped stone tombs that dot the hills and ridge lines of the Oman Peninsula and beyond (cf., Cleuziou 2009; Deadman 2012; Giraud 2009).[11] These tombs typically contain between one and four interred individuals, suggesting a kinship-based social organization, and a small collection of burial goods.[12] The Hafit are commonly interpreted as a primarily nomadic people who presumably continued the transhument sheep, goat, and cattle pastoralism seen in the Arabian Neolithic (Magee 2014:97-98; Potts 1994:616; Tosi 1987). However, discoveries at key archaeological sites suggest that the transition to the sedentary agricultural society seen in the subsequent Umm an-Nar Period likely has its origins in the Late Hafit (ca. 2900-2800 BCE; Cleuziou 1996; Potts 1994; Tosi 1986).[13] Small samples of Hafit Period architecture – small, irregular but

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[11] Hafit tombs are typified by those first identified on Jebel Hafit in the UAE. These cairn-shaped, circular tombs are constructed of uncut local stones, with two or three concentric, superimposed walls surrounding a central chamber. They are typically situated along the crest of hills or ridge lines, in visible locations (cf. Cleuziou & Tosi 2007:107-115; Magee 2014:93-94). Charlotte Cable (2012) and others have argued this conspicuous positioning is part of a tradition of kinship-based monuments being used to mark control of resources.

[12] Funerary assemblages of this period are particularly important as sources of evidence for economic interaction with populations beyond the Oman Peninsula and as chronological markers (Frifelt 1971; Méry 2000; Potts 1991). Assemblages typically include imported ceramics, beads (shell, ivory, and carnelian), and some metal objects (blades, fixtures for belts or other gear, fish hooks, etc.). As there appears to be no local ceramic production during the Hafit Period, all ceramics found in Hafit tombs are imported from Mesopotamia, the Indus, or Iran (Cable 2012:36; Méry 2000; Potts 1991). Such ceramics are, thus, particularly valuable for temporal markers. The discovery of Jemdet Nasr jars in numerous tombs on Jebel Hafit assisted in the initial dating of the period (Frifelt 1971; 1975; Méry 2000).

[13] Evidence for at least a seasonal sedentary lifestyle in the Hafit Period have been notably excavated at the oasis site of Hili 8 in the UAE (cf. Cleuziou & Tosi 1989) and at the coastal sites of R'as al-Hadd 6 and R'as al-Jinz 1 in Oman (cf. Cleuziou & Tosi 2007; Monchablon *et al.* 2003). The late Hafit occupation at Hili is particularly significant, as they include limited evidence for agriculture (emmer wheat, bread wheat, two- and six-row barley, and, controversially, millet) and domesticated animals (sheep, goat, cattle, dog, and donkey). For a detailed discussion of Hili's botanical remains, see Cleuziou & Costantini 1980; Cleuziou & Tosi 1989. For further discussion on the potential evidence for millet domestication in Arabia prior it its domestication in Africa, see Cleuziou & Tosi 1989:25. For further discussion on Hili's faunal remains, see Uerpmann & Uerpmann 2007.

rectilinear mudbrick structures – have been found at coastal and oasis sites, which suggest at least a seasonal sedentary presence.[14]

The subsequent Umm an-Nar[15] Period and culture (ca. 2800-2000 BCE) marks the development of the first widespread sedentary lifestyles and subsistence patterns found on the Oman Peninsula. During this period, the peninsula's archaeological landscape experienced a sharp increase in the number of sites, with the settlement pattern becoming especially dense along the coastlines and in the foothills and wadis of the Hajar Mountains (see **Chapter 3**). As often summarized in the synthetic literature, the Umm an-Nar settlement is characterized by a suite of three component parts: one or more monumental stone towers; a nearby tomb or group of tombs; and a collection of small scale, rectilinear architecture presumed to be domestic houses (Cleuziou 2002; Cleuziou & Tosi 2007; Magee 2014; Potts 1991).[16] Although these three settlement components have received unequal attention in archaeological field work, the collective data recovered from them convincingly characterizes the Umm an-Nar Period as one of intensified social and economic complexity (Cleuziou & Tosi 2007; Edens 1992; Magee 2014:98-101; Potts 1991; Rouse & Weeks 2011).[17]

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[14] Contrasting with the stone, oval structures of the Arabian Neolithic, the few known Hafit examples are rectilinear and constructed of mudbrick. Notable excavated coastal sites include Ra's al-Jinz 1 and Ra's al-Hadd 6 (cf. Cleuziou 2003; Cleuziou & Tosi 2007; Monchablon *et al.* 2003). Less well-published or more fragmentary examples are also known from Ra's al-Hamra on the Omani coast and Hili 8, Khashbah, and Bat in the interior.

[15] The 'Umm an-Nar' Period is named for the island in the emirate of Abu Dhabi where the material culture was first recognized (Bibby 1969; Frifelt 1995). See **Section 3.3.2a** for a full discussion of the settlement contexts excavated at Umm an-Nar Island.

[16] See **Chapter 3** for further discussion on the Umm an-Nar settlement tradition.

[17] Such developments are indicated by significant changes in regional settlement patterns, burial traditions, material culture styles, craft production, and increased engagement with the Bronze Age international trade network in the Arabian Gulf (cf. Cleuziou 2001; 2007; Cleuziou & Tosi 2007; Magee 2014:98-101; Tengberg 2003).

The best documented aspect of the Umm an-Nar culture is its mortuary tradition. Rather than the single chambered cairn tombs of the Hafit Period, Umm an-Nar tombs are large, circular (5-10 m diameter), semi-subterranean, stone structures with several interior chambers (see Fig. 1.4).[18] These tombs are communal, typically housing over 100 interments,[19] and continued in use for one or more generations (Blau 2001; Cleuziou

Fig. 1.4: Partially reconstructed Umm an-Nar tomb, Bat, Oman.

[18] The size and structure of Umm an-Nar tombs varies over the course of the period, with examples becoming larger, more structurally elaborate, and housing a greater number of interred individuals over time. The largest known example, at the site of Shimal in the UAE, has a diameter of 14 m (de Cardi 1988). In general, Umm an-Nar tombs are typically constructed of shaped stones without mortar and, particularly in later phases, their exterior is faced with blocks of cut white limestone. Interior tomb layouts vary, but typically includes a central dividing wall with numerous burial chambers on either side. Tombs are entered by one or two small, triangular or trapezoidal doorways. For further discussion, see Frifelt 1991; Giraud 2009; 2010; al-Jahwari 2009; Potts 2000. For comparative plans, see Clueziou & Tosi 2007: Fig. 96.

[19] The largest Umm an-Nar tomb so far excavated, Tomb A at Hili North (ca. 2300-2100 BCE), contained a minimum of 300 individuals inside the tomb and an additional 500 or more in the adjacent burial pit. This tomb dates to the Late Umm an-Nar period and likely represents the height of the mortuary tradition (McSweeny *et al.* 2008; Méry 1997).

& Tosi 2007:124-132; Gregorica 2011; al-Tikrity & Méry 2000; Weeks 2010). Mortuary goods are predominantly ceramics – the region's first locally produced ceramic tradition as well as imports from the Indus, Mesopotamia, and Iran (Méry 2000) – but also include assorted decorative objects (cf. Cleuziou & Tosi 2007:129; al-Jahwari 2009).[20] Tombs tend to be situated on flat wadi beds or alluvial plains (rather than on ridge lines, as in the Hafit Period), often within site of other Umm an-Nar architectural features. This Umm an-Nar shift in mortuary tradition is commonly interpreted as representing the development of an extended kinship-based community "at the clan or tribal level" (Cleuziou & Tosi 2007:132; see also Cleuziou 2002; 2003; Rouse & Weeks 2011).[21]

After the well-studied tombs, the most frequently documented and visually distinctive features of the Umm an-Nar landscape are the monumental towers – circular structures with average diameters measuring between 20 and 40 m and reaching heights of up to 8 m (see Fig. 1.5).[22] These monuments are typically, although not exclusively, constructed of roughly hewn stones. Tower interiors are composed of a series of stone or mudbrick cross-walls, the voids between which are filled with mud or rubble packing and thus do not appear to represent functional chambers (cf. Cable 2012; Cable & Thornton

[20] Umm an-Nar mortuary goods include: copper/bronze objects (i.e., blades, fish hooks, pins, etc.), jewelry (i.e., necklaces, bracelets, combs, rings, etc.), beads of precious materials (i.e., carnelian, silver, gold, ivory, etc.), shell, and soft stone (chlorite and/or steatite) vessels (cf. Cleuziou & Tosi 2007:129; al-Jahwari 2009).

[21] As Cable & Thornton have recently observed, the transition from the small Hafit cairns to the large Umm an-Nar tombs "has led most researchers to agree on a related development in social organization from small bands of individual families to larger corporate groups" (2013:393).

[22] The largest known Umm an-Nar tower, found at Tell 'Abraq in the UAE, measures 8 m tall and 40 m in diameter. Bat features a collection of seven towers, all measuring roughly 20 m in diameter and reach a maximum preserved height of over 3 m. Several of these towers are discussed in **Chapter 4**. For further discussion, see Cable 2012; Cable & Thornton 2013; Thornton *et al*. 2016.

Fig. 1.5: al-Khafaji tower (Tower 1146) and surrounding settlement architecture, Bat, Oman.

2013; Cleuziou 1989a; Frifelt 1975; 1976; Harrower *et al.* 2014). Excavated examples also include a well, the circular or square mouth of which is situated at the tower's surface and the stone-lined well shaft runs through (and presumably below) the substructure. Rarely has any trace of a superstructure been identified atop the stone tower foundations.[23] While the function of the Umm an-Nar towers has been much debated among archaeologists of the region, their purpose(s) remains uncertain.[24] As the number of investigated towers climbs, an ever-increasing degree of variation is apparent in their structural layout, exterior features, construction methods, and orientation on the landscape (cf. Cable & Thornton 2013).[25]

The third component of the Umm an-Nar settlement – small scale, rectilinear architecture – is the least understood. Documented examples of such architecture are located in relative close proximity to a monumental tower, although recent surveys suggest this may be a bias created by scholarly interest (cf. al-Jahwari 2009; al-Jahwari & Kennet 2010; see also Fig. 1.5). Preserved structures survive as stone walls or wall foundations composed of two dovetailed rows of stone that create a wall faced on both sides. These walls are dry- or mud-mortared and, in some examples, support traces of a

[23] Notable exceptions to this are found at the sites of Tell 'Abraq (Potts 1990b; 1991; 1993a) and al-Maysar (Weisgerber 1981). It is possible that the Umm an-Nar towers originally featured a mudbrick superstructure as found in Early Islamic era towers. See **Sections 3.3** and **5.3.1** for further discussion.

[24] For further discussion on the Umm an-Nar tower tradition and its cultural function/implications, see Cable 2012; Cable & Thornton 2013; Cleuziou 2001; 2007; Cleuziou & Tosi 2007:147; di Cardi 1975; di Cardi *et al*. 1976; Frifelt 1976; 1985; 1989; 2002; Tengberg 2003; 2012; Potts 1994; and Weisgerber 1981:198-204.

[25] Noting this variation in their survey of the 60 Umm an-Nar towers known in the modern Sultanate of Oman, Cable and Thornton (2013) question the accuracy of the term 'tower' to describe such monuments. They instead express a preference to the term 'raised circular platform' proposed by the early American survey team (Humphries 1974:50). However, they recognize that "it seems likely that the established designation of tower will remain in the literature for many years to come and will continue to encompass very disparate monumental forms" (2013:378-379).

mudbrick superstructure. The preserved stone foundations may also have supported walls composed of organic materials, such as palm fronds, that have not survived in the archaeological record.[26] In rare instances, rectilinear Umm an-Nar mudbrick structures without stone foundations have also been identified at coastal sites.[27] Irrespective of construction material, such Umm an-Nar buildings are characterized by rectilinear layouts and can be either agglomerative or free standing. An analysis of building function or development of a structural typology for this period beyond the general observation of 'circular monuments' and 'rectilinear settlement structures' has until now not been developed (see **Chapter 6**).

Amid this increasingly complex Umm an-Nar landscape, the site of Bat can boast multiple examples of each of these three settlement components. Bat's archaeological remains are dispersed across a 400+ ha area of the Wadi Sharsah oasis, which is located within one of the main passes through the Hajar Mountains along the Wadi Khabir (see **Chapter 4**). While the site has a substantial history of research focusing on its tombs (Böhme 2011; 2012; Böhme & al-Sabri 2011; Döpper & Schmidt 2013; 2014) and monumental towers (Frifelt 1976; 1985; 2002a; Thornton *et al*. 2013; 2016), Bat's settlement contexts have until now received very little attention. With this dissertation, I examine the distribution of settlement remains across Bat's landscape, the organization of built and unbuilt space within those settlements, and details of the excavated domestic

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[26] See **Section 3.3.2a** discussion on the settlement at Umm an-Nar Island for an example of stone wall foundations which likely supported palm frond architecture. See also Frifelt 1995.

[27] Most notably at the site of R'as al-Jinz (cf. Cleuziou & Tosi 2000; 2007). See **Section 3.3.1a** for further discussion.

contexts. Through this study, I assess the social complexity, organization, and household foundations of Bat's Umm an-Nar society.

1.4 The Road Ahead

In this dissertation, I explore the Umm an-Nar settlement and house both broadly throughout the Oman Peninsula and as they specifically occur at the site of Bat. I proceed through the study in seven stages or chapters. With this first chapter, I have established the theoretical and contextual background necessary to delve into the specifics of Umm an-Nar society and its built environment. In the chapters to come, I explore this relationship with increasing spatial and conceptual specificity.

In the second chapter, I continue to lay the theoretical foundations of this study through a review of the principles and recent developments of settlement and household archaeology. This chapter concludes with a discussion of the challenges that the archaeological landscape of the Oman Peninsula presents to conventional archaeological methods. In it, I propose a strategy for navigating these obstacles and exploring the Umm an-Nar remains at Bat from the level of the landscape to that of the individual building.

The third chapter consists of a survey of the research so far conducted on sites interpreted as Umm an-Nar settlements throughout the Oman Peninsula. With this survey, I explore models of Umm an-Nar social organization, lifestyles, and subsistence strategies within the context of the sites they are derived from. This chapter reveals the diversity of sites thought to represent the Umm an-Nar settlement tradition and how the composition of those sites vary across the geographic regions of the Oman Peninsula. I conclude by arguing for a more balanced representation of settlements from each of the peninsula's broad regions in reconstructions of Umm an-Nar society.

The fourth chapter of this dissertation introduces the site of Bat in detail through a discussion of its chronology and development over the course of the Umm an-Nar Period. I review the difficulties faced by archaeologists of the region in constructing an absolute chronology for the Umm an-Nar Period and emphasize recent refinements of that chronology based on ceramic data and C14 dates from Bat. Using this improved chronological sequence, I present a phased reconstruction of Bat's Umm an-Nar settlement landscape that highlights how the site's occupation changed over time. This sub-phased narrative of Bat's Umm an-Nar occupation forms the backdrop for the spatial analyses of the site's settlement contexts that are presented in the subsequent two chapters.

In the fifth chapter, I evaluate the nature of Umm an-Nar social complexity as it is represented on Bat's settlement landscape. By considering the inter-visibility of the site's monuments and settlements, I consider the degree to which the clusters of Umm an-Nar settlement scattered across the Bat landscape were socially connected. I then assess the social organization of Bat's Umm an-Nar populations by examining the organization of built and unbuilt space within the its various settlements. The chapter concludes with a discussion of Bat's apparent social complexity and its implications for interpretations of other Umm an-Nar settlement landscapes.

The sixth chapter details the results of recent excavations of Bat's settlements. I reconstruct the use-lives of individual buildings at the Settlement Slope and al-Khafaji in order to illustrate their developing socioeconomic use of space. Through these descriptions, I assess building function and work toward defining the Umm an-Nar house and household as they were manifest at Bat. This chapter concludes with a discussion of Bat's Umm an-Nar social organization through the perspective of the household.

The seventh and final chapter discusses Umm an-Nar society at Bat and beyond in light of the social and spatial analyses carried out in this dissertation. I call for a greater focus on the Umm an-Nar settlement in studies of the Oman Peninsula's Early Bronze Age and, within those settlements, a more robust interpretation of building function and use of space. I conclude with a final reconstruction of Bat's Umm an-Nar society and suggestions for future research.

CHAPTER 2:

SETTLEMENT, ARCHITECTURE, AND HOUSEHOLD

2.1 Introduction

The built environment and material culture that surrounds a society forms the backdrop to and foundation for the everyday lives of its members. For the archaeologist, the physical remains of such contexts are essential to the sociocultural and economic interpretation of any ancient sedentary society. Yet, before we can explore Bat's Umm an-Nar settlements and domestic remains, we must first establish the theoretical and methodological foundations for this dissertation. Material culture, especially architecture, is closely tied to sociocultural qualities such as social complexity and organization, economy, subsistence strategies, daily lifestyle, and identity (Bourdieu 1977; 1990; Giddens 1984; Hodder 1990; 1998; Kramer 1979; Rapoport 1969; 1982; Steadman 2010). It is thus possible to understand these traits (to varying degrees) for ancient societies based on the remains of the places that such societies built and occupied. As I argue below and a many scholars have argued before me, the settlement and the house are settings especially well suited to such sociocultural interpretation (cf. Allison 1999; Ashmore 2002; Byrd 1994; Flannery 1972; 2002; Guengerich 2014; Kent 1990; Kuijt 2000; Steadman 2010; Tringham 2001; Wilk & Rathe 1982; Canuto & Yaeger 2000). In this chapter, I review key terms central to this dissertation (e.g., settlement, house, and household) and discuss the history of scholarship for how such material surroundings reflect the society that created them (see **Sections 2.2-3**). With this background established, I then move on to propose a methodological strategy for engaging with Bat's settlement remains and the particular qualities of their preservation (see **Section 2.4**).

2.2 Settlement Architecture and Archaeology

Architectural remains are pervasive in the archaeological record of almost every region and period. They are frequently the first elements of ancient activity to be identified on a landscape and give sites their form and structure. From the field's earliest days, archaeologists have engaged in architectural analysis at varying degrees of self-awareness and methodological clarity. As scholarly appreciation for the social import of the built environment[28] developed, archaeological consideration of ancient architecture also became increasingly rigorous. It is now generally recognized that built environments are culturally constructed to facilitate certain forms of human behavior (cf. Ashmore 2002; Fisher 2009; Ingold 2013; Rapoport 1969; 1976; 1982; 1990; Smith 2003; Steadman 1996; 2010). For the archaeologist, architecture provides a glimpse into the spatial and social organization of the ancient societies who designed and functioned within the structures – as famously noted by Winston Churchill, "we shape our buildings, and afterwards, our buildings shape us" (1944). In this section, I discuss the theoretical foundations and methodological approaches to the archaeological study of architecture, emphasizing such schools of thought that inform this dissertation.

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[28] The **built environment** is here understood as the culturally constructed stage, composed of culturally charged interior and exterior spaces, on which social structures are developed, transformed, and reproduced (cf. Fisher 2009; Ingold 1993; Smith 2003; Tilley 1994).

2.2.1 Theoretical Foundations

The hypothesis underlying archaeological interpretations of ancient architecture – that spatial organization both guides and reflects human behavior in meaningful and predictable ways – is ultimately derived from the works of social theorists Anthony Giddens and Pierre Bourdieu. According to Giddens's theory of 'structuration,' the built environment creates social organization through messages of appropriate behavior embedded in the physical settings that society is enacted within (1976; 1979; 1984). The culturally normative behavior invoked by these messages is seamlessly perpetuated from one generation to the next though the continued use of the built environment. Giddens thus sees human behavior as habituated by social practices that are repeatedly cued by the meaning-laden structural setting. In a similar vein, Bourdieu's practice theory sees human behavior as determined by individual *habitus*, or a unique frame of behavioral reference acquired by each person through lived experience within a physical and social structure (1977; 1990). The built environment provides the conceptual stage and spatial framework for the behavioral *habitus* to be carried out within. In these theories, Giddens and Bourdieu each emphasize the reflexive relationship between the individual human agent, the physical environment, and the sociocultural organization. For the archaeologist, this interconnected chain of logic serves as the theoretical foundations for the use of past architectural built environments to extrapolate ancient social organization and human behavior.

Agency theory, also originating in the works of Bourdieu (1990)[29] and especially Giddens (1984),[30] recognizes the ability of the human individual or *agent* to directly and meaningfully impact the social structure, material culture, or built environment. Architecture, especially that of residential structures, is a medium especially well-suited for archaeological engagement with the reflexive 'agent – environment – social organization' relationship identified in structuration and practice theories. The human agent, being capable of both rational and irrational action, is understood to function within a social system with normative rules of appropriate behavior. The individual's *agency* lies in the ability to act, consciously or unconsciously, in ways that either reinforce or counteract the social norms (Ross & Steadman 2010).[31] Architecture, the physical product of agents choosing how to spatially structure their surroundings in a form and manner logical to their personal and/or social frame of reference (cf. Guengerich 2014; Steadman 2010), provides the archaeologist with a material vantage point from which to view the agentive built environment and the social organization it supported (cf. Steadman 2015:39-40).[32]

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[29] Bourdieu sees the human capacity for action as limited and structured by the *habitus,* however he recognizes that an individual's behavior has the potential to gradually influence the overall social structure (1990:52-53).

[30] Within structuration, Giddens views humans as knowledgable actors or *agents*. While he sees the majority of human behavior as habitual and environmentally prompted ('practical consciousness'), he also recognizes that agents have the capacity to understand and foresee the consequences of their actions ('discursive consciousness') (1979:5). When an individual acts in a discursive manner, using the awareness of action and consequence for his or her own purposes, that individual's agency is employed (1984:283-4).

[31] For further discussion of identifying agency in archaeological contexts, see Barrett 2001; Dobres 2000; Dobres & Robb 2000; Dornan 2002; Gardner 2004; Hodder 2000; Smith 2001; Steadman & Ross 2010.

[32] Following the strategy laid out by Anna Guengerich, in this dissertation agency is used as "an initial premise that enables a more nuanced perspective on the given research setting" (2014:3) rather than a research objective in and of itself.

Nevertheless, with its inescapable dependence on the material elements of human activity, archaeology frequently lacks all the building blocks necessary for reconstructing ancient social systems. For guidance in identifying and interpreting the meaningful patterns in material culture and the built environment, archaeologists have traditionally relied upon analogy with the modern or historic ethnographic record to supplement and add to what can be learned from the architectural record. Underlying such analogies is the ethnoarchaeological assumption that cultures existing in comparable environments and levels of social complexity will utilize resources and space in similar ways.[33] As architecture serves as one of the primary mediums though which people experience and understand space in modern as well as ancient cultures, archaeological interpretations of architecture draw on ethnographic and ethnoarchaeolgical studies of the built environment and its functional role in society.

In the Near East, we are fortunate in having a number of valuable ethnographic studies focusing on village life that take the built environment into account. Pioneering research intended for ethnoarchaeological use was carried out in modern Iran by Patty Jo Watson (1979) and Carol Kramer (1979; 1982a; 1982b).[34] These studies specifically address the creation and deposition of modern architecture and material culture and their relationship with issues of social structure, economic production, socioeconomic stratification, and division of labor. More recently, further ethnoarchaeological

[33] Ethnoarchaeology is here considered the study of modern material culture by archaeologists for the purpose of analogy with ancient material culture from similar socio-environmental contexts. For an overview of the developments in the field of ethnoarchaeology, see David & Kramer 2001.

[34] Kramer's article, 'An Archaeological View of a Contemporary Kurdish Village: Domestic Architecture, Household Size, and Wealth' (1979), and subsequent book, *Village Ethnoarchaeology: Rural Iran in Archaeological Perspective* (1982a), have become benchmarks for ethnoarchaeological research in the region.

investigations of village contexts were carried out in Iran, by Lee Horne (1983; 1994)[35] and William Sumner (1979; 1989), in Syria, by Kathryn Kamp (1987; 1991; 1993; 2000) and Helga Seeden (1985), and in southeastern Turkey by Oliver Aurenche (1984) and others (cf. Aurench, Blazin, & Dadler 1997; Çevik 1995; Dittemore 1983; 2002; Yakar 2000). On the Oman Peninsula, ethnoarchaeological research has focused on the lifestyles and social organizations of the region's nomadic cultural groups and coastal communities (cf. Costa 1983; 1985; Lancaster & Lancaster 1992; 1996; 2002).[36] While these studies provide valuable insight into the region's social structures, they are of limited use in architectural analysis. Thus, although they are not as geographically comparable to the Oman Peninsula as to other parts of the Near East, the social and material patterns observed in traditional Iranian and Syrian villages provide the most comparable data for analogy with the inland prehistoric Umm an-Nar settlements.

2.2.2 From Theory to Application

With the theoretical foundations for the archaeological interpretation of architecture established, let us move on to discuss methods for exploring ancient social organization through settlement architecture. While the potential interpretive uses for settlement buildings are manifold, their value can be summarized through two general points: (1) architecture's relative permanence in the social and archaeological records and (2) the sustained theory that architecture impacts the people who use it in predictable

[35] Horne's research is also particularly valuable, as she specifically targets the relationship between village social organization and its architectural setting.

[36] Lancaster and Lancaster particularly focus on nomadic groups active in the southeastern region of the Oman Peninsula, as pertinent to the archaeological research of the Joint Hadd Project (cf. Cleuziou & Tosi 2000).

ways (cf. Ashmore 2002; Flannery 1972; 2002; Kent 1990; Rapoport 1990; Steadman 1996; 2000; 2015). Architecture is thus often the archaeologist's most reliable point of access to an ancient culture. Spatial analysis methods, discussed in more detail below (see also **Section 2.4** and **Chapter 5**), utilize the physical and quantifiable properties of ancient buildings in various ways in order to reveal what social structures and normative systems of behavior they housed (cf. Preucel 2006; Rapoport 1982; Steadman 1996; 2015).[37] Methods based on the spatial analysis of settlement architecture, including population estimation, space syntax (spatial/structural logic), proxemics (cultural/spatial needs), and access analysis (boundary control), read practical rules of human behavior from building form and layout. In a more humanistic vein, culturally interpretive approaches (e.g., semiotics, phenomenology) consider symbolic and experiential meaning encoded into the built environment and its implications for cultural beliefs and social organization. In this dissertation, I pursue an integrative approach, drawing on both spatially based and culturally interpretive methodologies, that makes use of the tangible and experiential properties of Bat's architectural remains to extrapolate their sociocultural implications for the site's Umm an-Nar occupation.

With its defined physical attributes and quantifiable dimensions, architecture creates settings that are particularly well adapted to systematic applications of Bourdieu and Giddens's theories to interpret human society. Architecture, as the product of and stage for cultural activities, is a prime vessel for communicating rules of culturally

[37] Archaeological studies of the architectural division and use of space seeks "to address the 'hidden dimensions' embodied in the architecture itself, using the portable material record as supportive rather than primary evidence" (Steadman 1996:63).

appropriate behavior. Using ethnographic observations as a comparative basis, archaeologists have developed a repertoire of methods for using quantifiable aspects of architectural remains to visualize or calculate probable ancient societal traits (e.g., population size, expected privacy, resource control, social stratification, etc.).[38] However, although comforting in their statistical 'percentages of confidence,' models assuming a direct correlation between the built environment and social organization leave large portions of human culture untouched. Space syntax[39] especially has been critiqued for its omission of architectural symbolism and failing to allow for human free thought and creativity (cf. Cutting 2003; Fisher 2009; Hodder 1991; Leach 1978; Parker Pearson & Richards 1994; Taylor 2002). Thus, while such methods can be used as helpful tools for shedding light onto otherwise unseen spatial relationships and their possible sociocultural implications, these strategies are best employed as what Marion Cutting describes as "non-quantitative 'tools to think with'" (2003:1) rather than as a direct means of interpretation.

One of the most frequently used of these spatial analytical tools is the calculation of population size through the area of roofed space found in domestic buildings. This technique relies on ethnographic observations of the average roofed space within a house necessary to accommodate an individual person. The proportions of space per person can then be used to calculate the probable maximum occupancy of an ancient house, especially if the environmental conditions between the observed modern structure and

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[38] See **Section 2.4** below and **Chapter 5** for further discussion of structure-based methods used to analyze the architectural remains at Bat (i.e., population estimation, proxemics, and access analysis).

[39] Space syntax is a broad methodological school of socio-spatial analysis techniques, including the methods of proxemics and access analysis discussed below in **Section 2.4** and **Chapter 5**.

ancient house are similar. While there is a sizable literature debating the accuracy of the various proposed formulae, the original equation developed by Raoul Naroll (1962) of 10 m^2 of roofed space per individual continues to be commonly employed as a rough guide to population size.[40] Specifically relevant to the Near East, recent ethnographic research from Iran now suggests that a roofed area per person estimate of between 7 and 7.5 m^2 may be a more accurate ratio for the region (Byrd 2000).[41]

Complementing the straightforward calculations of population estimation is the broad research field of space syntax. This intricate array of spatial analysis tools (including proxemics and access analysis, discussed in more detail in **Section 2.4** and **Chapter 5**) evaluates the social implications of organizational patterns within the built environment. The premise of space syntax, or the study of the logical relationship between spatial and social structure, is based on the assumption that human societies use spatial organization as a prompt of and proxy for social organization (Bafna 2003; Hillier & Hanson 1984; see also Osborne 2012).[42] By dividing open space into discrete spaces or 'rooms' with structurally determined dimensions and access points, buildings exert control over movement through and interaction within their spaces, thus directly

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[40] Naroll found "the population of a prehistoric settlement can be very roughly estimated by archaeologists as of the order of one-tenth of the floor area in square meters occupied by its dwellings" (1962:588). While various studies have critiqued Naroll's formula (cf. Byrd 2000; Schacht 1981; Warrick 1989), it continues to be used as a general guide to village population estimation (cf. Flannery 2002).

[41] See **Chapter 6** for further discussion of population estimation for Bat's settlements.

[42] Within space syntax theory, the built environment is recognized as space that has been 'configured' by its users to reflect and facilitate the manner in which and portion of the population by which it is used. In this school of thought, the relationship between spatial and social organization is viewed as reflexive – "it is a central premise within the space syntax research program that social structure is inherently spatial and inversely that the configuration of inhabited space has a fundamentally social logic" (Bafna 2003:18). The stated objective of proponents of syntactic methods is the development of a clear means of representing the social logic behind configured space and, ultimately, its practical application (cf. Bafna 2003; Fisher 2009; Hanson 1998; Hillier 1996; Hillier & Hanson 1984).

impacting social activity. Methodologically, space syntax uses an assortment of plans and diagrams representing the built form and the spatial relationships between its interior and exterior spaces. Syntactic visuals emphasize socio-structural traits such as nodes of connectivity, chains of access, lines of sight, and locations of relative privacy (cf. Fisher 2009:440).

While spatial analysis tools provide a range of ways to evaluate archaeological settlements, in order to achieve a balanced perspective of the ancient societies they represent such contexts must also be considered through culturally interpretive methods. In the social production of a built environment, geographic space is transformed into a culturally charged 'place' that is instilled with meaning beyond its physical properties (cf. Bafna 2003; Guengrich 2014; Hastorf 2009; Hutson 2010; Ingold 1993; Love 2014; Pauketat & Alt 2005; Tilley 2005; 2009).[43] Architecture thus serves both as a means of physically structuring space and as a non-verbal medium for communicating cultural messages (Preucel 2006; Rapoport 1982). Human reactions to and interactions within such a built environment are guided by both its structural dimensions and its embedded cultural meaning. In order to access the cultural or 'symbolic' portion of the agent-environment relationship, archaeologists and other social scientists have developed a variety of interpretive methods that consider the context of and experience of being within a space – methods particularly pertinent to this dissertation include semiotics

[43] For the purposes of this dissertation, 'space' can be understood as a concept of geographic location or dimension, typically without a connected cultural meaning. 'Place,' in contrast, is a space invested with meaning as a result of human belief or activity. For further discussion, see Bender 1995; Ingold 1993; Shanks & Tilley 1987; Smith 2003:11; Tilley 1994; 2009. The social production of space and place can be considered a dialogue between social agents, the natural environment, and material culture (cf. Guengerich 2014; Hutson 2010; Love 2013; Pauketat & Alt 2005).

(Gardin 1992; Preucel 2006; Ross & Steadman 2010) and phenomenology (Ashmore 2002; Tilley 1994; 2009).[44] Although not as methodologically straightforward or statistically verifiable as methods based on spatial analysis, culturally interpretive methods for understanding the built environment complement and expand upon spatial interpretations in otherwise inaccessible directions.[45]

Adapted from the general study of non-verbal communication, architectural semiotics considers the built environment as a spatial medium for symbolic cultural communication (Chandler 2007; Eco 1986; Foucault 1970; Preucel 2006).[46] In its archaeological application, semiotics dove-tails neatly with interpretations of the past based on spatial analyses due it its assumption of logical, 'readable' patterns (or semiological systems) in the built environment and material culture record (cf. Eco 1986; Fletcher 1981; Gardin 1992). At the same time, semiotic theory and its emphasis on the cultural symbol have also been embraced by postprocessual and cognitive archaeologists (cf. Hodder 1986; 1990; Renfrew 1994; Tilley 1994; 2009). These archaeological schools view material culture – including architecture – as embodying an element of the culture it was produced by and as functioning as an active component of that culture during its use (i.e., material culture as social practice; see Hodder 1986; 2000; Prown

[44] See **Section 2.4** and **Chapters 4-6** for further discussion on archaeological applications of semiotics and phenomenology.

[45] Structuralist methods that analyze spatial organization as a proxy for social organization (i.e., space syntax) do so at the expense of the culturally encoded meanings or symbols. By breaking a socioculturally constructed built environment down into its spatial segments, the cultural character of those segments is overlooked. The culturally interpretive methods discussed below provide strategies for addressing ancient cultural meaning that complements, rather than contrasts, structuralist interpretations.

[46] For an overview of semiotics in archaeology, see Gardin 1992; Preucel 2006; Ross & Steadman 2010.

1993).[47] Applications of semiotic theory thus focus on how symbolic value in material culture and the built environment can enhance our understanding of ancient cultural systems and beliefs.

Although conceptually useful, the fundamental analogy in semiotic theory that parallels cultural meaning communicated through material culture to meaning communicated through language or text does not completely satisfy all interpretive archaeologists. Critics point out that material objects impart meaning in fundamentally different ways than do texts (see Meskell 2001; Tilley 2004; 2005). The physicality or 'materiality' of an object or built environment allows it to communicate meaning (culturally constructed or otherwise) through the full range of sensory interaction: sight, touch, scent, sound, or even taste (Hutson 2008; Ingold 1995; McMahon 2013; Meskell 2001; Miller 2005; Thomas 2008; Tilley 2005). This line of thought has led archaeologists to explore the ways in which phenomenology, or the study of how humans experience and are influenced by 'phenomena,'[48] can help inform our understanding of past material culture and built environments.[49]

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[47] The concept of 'social semiotics' adopted by postprocessual and cognitive archaeologists is founded on contextual logic. Cultural meaning instilled in material objects or structures is created through sociocultural interaction with those objects or structures within a specific cultural framework. When removed from that framework, or context, the object looses its semiological value. Thus in order to reconstruct meaning, an object must be considered within its environmental and cultural context (Preucel 2006:6).

[48] For the purposes of this dissertation, I adopt Chris Tilley's definition of a 'phenomenon:' "A phenomenon is any entity (thing or event) which presents itself as a subject in the world" (2005:201). As applied at Bat, the phenomena considered include architecture, portable material culture, and the natural environment.

[49] Tilley, the central figure in archaeological applications of phenomenology, describes the method as involving "the study and description of phenomena… So the central concern is with the conceptualization of subject-object relations. It involves the description of things as they are experienced in the world by a human subject… Phenomenologists try to ground their descriptions of the social and material world in the manner in which people think and feel about it rather than in an abstract manner" (2005:201-2).

Archaeological applications of phenomenology use the human body as a medium for understanding sensory experience and how phenomena may be intentionally manipulated to create a specific experience (Ashmore 2002; Tilley 1994; 2009). The underlying assumption of such applications is that the modern human experience of an object or environment is comparable to the ancient human experience of that same phenomenon.[50] Although proponents of phenomenology hold it to be more grounded in the accessible issues of physical human experience than semiological interpretations of the built environment, the method and its various sensory-based theoretical offshoots[51] have met with criticism due to their subjective results and esoteric, philosophical roots[52] (cf. Brück 2005; Fleming 2006; Lake & Woodman 2003; Whitely & Gillings 2000). Efforts to bridge the gap between experiential and verifiable analyses of the ancient built environment attempt to tie experiential assessments more firmly to their physical, quantifiable settings (cf. Earley-Spadoni 2015; Llobera 1996; 2001; 2006; 2007; McMahon 2013).

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[50] The majority of archaeological studies using phenomenology focus on landscapes or large-scale built environments that offer immersive experiential settings, rather than portable material culture that has been removed from its cultural context. In his influential book, *A Phenomenology of Landscape,* Tilley professes to attempt to "develop a framework with which to understand longterm relationships between people and features of the landscape" (1994:1). For further discussion of archaeological applications of phenomenology, see Ashmore 2002; 2004; Ashmore & Knapp 1999; Bender 1995; Bradley 2001; Thomas 1996; Tilley 1994; 2009; and Ucko & Layton 1999. For discussion of experiential archaeology focusing on material culture and the human body, see Hamilakis 2011; Hodder & Hutson 2003; Meskell 1996; 1999.

[51] For archaeology of the senses, see Bender 1998; Frieman & Gillings 2007; Hamilakis 2011; Ingold 2000; McMahon 2013.

[52] The foundations of phenomenology are based on German Romanticism philosophies from scholars such as Husserl, Heidegger, Merleau-Ponty, and Sartre.

2.2.3 Summary

As we have here discussed, architectural remains are often the archaeologist's most reliable and insightful source of information on social structures, cultural qualities, and daily life in the ancient world. To review, the reflexive 'agent – environment – social organization' relationship identified by Bourdieu and Giddens forms the theoretical foundation for virtually all archaeological approaches to interpreting ancient architecture. Although Bourdieu and Giddens's studies focus primarily on human experience and social structure, their observations enable archaeologists to also conceptually link architectural remains to the ancient peoples who built and used them and to the sociocultural systems the buildings supported. Spatially based methods of architectural analysis (population estimation, proxemics, access analysis) use the physical parameters of ancient built environments to inform interpretations of the society that created them. Culturally interpretive approaches (semiotics, phenomenology), on the other hand, consider how sociocultural meaning can be communicated through a build environment symbolically and experientially. While these assorted methods each emphasize a different aspect of the sociocultural system and its relationship with the built environment, their shared theoretical foundations serve as a unifying point of reference and facilitate dialogue between their results. In my analysis of the architectural remains at Bat's various settlements[53] I draw on the full range of methods discussed in this chapter and, relying on their shared theoretical foundations, integrate the results in effort to move toward a wholistic interpretation of Umm an-Nar society.

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[53] See **Chapter 5** for further discussion.

Also of particular interest in my examination of Bat's settlements is the architectural form and social implications of Umm an-Nar structures assumed to represent 'houses.' Up until now, I have purposefully refrained from discussing identification of architectural functions or types. However, the interpretive significance of socio-spatial analyses conducted on a building with a defined social purpose is significantly greater than that of one without. The pivotal question then becomes: do some or all of the buildings preserved in Bat's Umm an-Nar settlements represent domestic houses and, if so, how can the houses be differentiated from other settlement structures? In the following section, I move on to discuss methods of analyzing interior contexts from settlement structures, theories of how such contexts complement the profiles derived from the architectural remains, and the relative benefits and challenges of attempting to identify building – and especially house – types and functions in the archaeological record.

2.3 Household Archaeology

Now that we have introduced numerous ways the architecture at Bat can be examined to explore the site's Umm an-Nar sociocultural structure, I will narrow the perspective even further and consider what can be learned from the material culture and evidence of human activities within the buildings of Bat's settlements. Household archaeology is a sub-discipline that has developed specifically with the intent of examining such details in the material record of domestic contexts in order to examine ancient societies from the bottom-up (Allison 1990; Blanton 1994; Carballo 2011;

Hammel 1984; Hendon 1996; 2010; Hutson 2008; Kent 1990; Müller 2015; Nash 2009; Parker & Foster 2012; Tringham 1991; 1994; 2001; 2012a; Wilk & Rathje 1982). Household archaeologists attempt to identify the smallest possible unit of socioeconomic production (the household) as represented by its physical remains (the house and its contents) and, through a detailed study of its characteristics, come to a deeper understanding of the ancient society's foundations.[54] The Umm an-Nar Period, as the Oman Peninsula's earliest phase of widespread sedentary occupation, would seem to be a prime subject for a household-based archaeological study. However, as I demonstrate below (see **Section 2.4**), Umm an-Nar settlement contexts such as those at Bat frequently do not meet the assumptions inherit in household archaeology as it is applied in other parts of the world – namely, the presence of easily identifiable houses. In this section, I explore the theoretical premise of household archaeology and consider how it might be adapted to fit the functionally ambiguous architectural settings of Bat's settlements.

2.3.1 Objectives of Household Archaeology

In order to assess the extent to which household archaeology can be employed in the interpretation of Bat's settlements, we must first understand the sub-discipline's objectives, theoretical foundations, and assumptions. As first introduced by Richard Wilk and William Rathje in 1982, the professed goal of household archaeology is to bridge the 'mid-level theory gap' that exists between theories of cultural change and archaeological data – "households are the level at which social groups articulate directly with economic

[54] As Sharon Steadman observes, household archaeology considers a concentration of activities in a single context and moment in time (the house during a specific use phase), while the archaeology of architecture considers gradual changes in a broader context (the settlement) over a longer period of time (the use-life of a building or group of buildings) (1996).

and ecological processes. Therefore, households are a level at which adaptation can be directly studied" (Wilk & Rathje 1982:618).[55] Using it to represent the fundamental socioeconomic unit of society, Wilk and Rathje and their contemporaries interpret the household as a microcosm of community subsistence (production/consumption), specialization, social organization, complexity, and demographic trends (cf. Ashmore & Wilk 1988; Flannery 1976; Hammel 1984; Wilk & Netting 1984).[56] Although such early iterations of household archaeology almost exclusively targeted the socioeconomic aspects of household function, in more recent years the pursuit has expanded to consider cultural, ideological, and humanistic aspects of the household as well.[57] Ruth Tringham summarizes the sub-discipline's evolved objectives as attempting "to create a context in which a humanized reconstruction of the past may be nurtured, through the study of intra-settlement relations" (2001:6925).[58] By focusing on the domestic, archaeologists are thus able to consider evidence of the 'everyday' in ancient societies, where fundamental social

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[55] For further discussion on household archaeology as a method of Middle Range theory, see Ashmore 2002; Binford 1978; Tringham 2001; and Van Gijseghem & Vaughn 2007.

[56] In a similar vein, Marxist and Neo-Marxist applications of household archaeology, popular in the 1980s, used the household as a model through which to explore social inequality and production (cf. Rathje & McGuire 1982; Tringham 2001). For more on prescribed goals of early household archaeology, see: Ashmore & Wilk 1988; Hammel 1984; Horne 1982; Kent 1987; Netting, Wilk, & Arnould 1984; Wilk & Netting 1984; and Wilk & Rathje 1982.

[57] Since household archaeology's inception as a sub-discipline, archaeological work in the Americas (Mesoamerica especially) has consistently been a source of refinement and furtherance for the field. New World applications of household archaeology are largely responsible for first using the household as a medium through which to consider questions of gender, ethnicity, community, family, and identity. For a sample, see Ashmore & Wilk 1988; Carballo 2011; Chesson 2012; Cresswell 2004; Hendon 1996; 2010; Hutson 2008; Nash 2009; Van Gijseghem 2001. More recently, more research in the Near East has also produced some valuable methodological contributions to household archaeology (cf. Baker 2015; Brody 2015; Foster & Parker 2012; Müller 2015; Rainville 2012; 2015; Tringham 1991; 1994).

[58] Much of Ruth Tringham's work focuses on how households can be used to reconstruct the ancient individual, especially in terms of identity and gender. Tringham terms this perspective 'households with "faces"' (1991; 1994). For a summary on recent developments in household archaeology, see Allison 1999; Cutting 2006; Müller 2015; Tringham 2012a; also Blanton 1994.

issues such as identity, class, gender, and production were negotiated, enacted, and maintained (Cresswell 2004; Hutson 2008; Smith 2003; Tringham 2012a:86). In this form such a perspective would be particularly valuable for archaeological research on the Oman Peninsula, where preoccupation with monumental and mortuary contexts has developed a skewed impression of the ancient past.[59]

2.3.2 Theoretical Foundations

All the interpretive goals of household archaeology discussed above are predicated on a theoretical framework that rests on the overlapping relationship between the 'house' and the 'household.' Although often equated with the domestic structure or 'house,' a *household* is a social rather than a physical entity. While the composition of a household may vary, including any number of individuals biologically connected or otherwise, its membership is typically defined by co-residence[60] and shared contribution to the group substance and way of life (Allison 1999; Carballo 2011; Hendon 1996; 2010; Nash 2009:206; Wilk & Rathje 1982). Socially, the household can be understood as the smallest self-sustaining unit that participates in the larger community, produces and socializes children, and transmits group property and identity[61] from one generation to the next (Bowser & Patton 2004; Carballo 2011; Wilk & Rathje 1982:620-31).

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[59] For further discussion of the Umm an-Nar Period and archaeological treatment of it, see **Section 2.2** below.

[60] As will be discussed in more detail below, there are several exceptions to the expectation of co-residence among household members – including social households dispersed throughout multiple house structures and members of different households residing within the same house (cf. Brody 2011; Hammel 1984; Wilk 1984; Wilk & Rathje 1982).

[61] Group our household identity is increasingly becoming an access point for archaeological studies of ethnicity, gender, power, inequality, and politics. Although largely beyond the scope of this dissertation, influential studies include Allison 1999; Ambridge 2007; Cutting 2006; Hendon 1996; and Souvatzi 2012.

Archaeologically, however, the household is most recognizable as the smallest identifiable element within the socioeconomic system and settlement pattern (Carballo 2011; Nash 2009; Rainville 2012; 2015). A *house*, in contrast, is the physical structure that serves as the stage for domestic activity and household social interaction. Cross-culturally, house size, form, and functional properties vary across time and space (cf. Bourdieu 1973; Hawker 2006; Horne 1994; Kamp 2000; Kramer 1982b; Mershen 1999). For archaeological purposes, a house can be defined as a set of interconnecting rooms, free-standing or otherwise, containing or directly associated with physical evidence for domestic activity (Gillespie 2007; Steadman 1996; Stevanovic 2012; Stone 1987; 2012; Tringham 1994).

Household archaeologists use this connection between the physical house and its inhabitants as a means of accessing the relationship between the household and either the larger society it was a part of or the individual persons who composed it. However, comparable to archaeological approaches to interpreting architecture, the social role played by a household in society can be interpreted through a variety of anthropological and sociological lenses. As recently summarized by Donna Nash (2009), these approaches to household archaeology fall into the categories of materialist, structuralist, and neoevolutionary. Materialist treatments consider the household as a social entity that facilitates domestic production/reproduction (Wilk & Rathe 1982) and supports the basic subsistence needs of its members (Flannery 1998; Goody 1972). Although such approaches have been critiqued for failing to recognize diversity and the significance of individual agency within the household (cf. Allison 1999; Tringham 1991; 1994; 2010), they remain integral to archaeological understanding of domestic economy and social foundations. From a structuralist perspective, the private household contrasts with and is set apart from the society's public sphere (Nash 2009:206; Spencer-Wood 1999).[62] Structuralist models also consider the house a cosmogram or "structuring structures" (Nash 2009:206) that represent the household's world view and serves to maintain the status quo by communicating social identity and hierarchy (cf. Bourdieu 1977; Faust & Bunimovitz 2003; Flannery 1998; Giddens 1979; Rapoport 1969; 1990; Tringham 1991).[63] Finally, neoevolutionary models see households as the basic building block of social complexity, the relative socioeconomic success of which is ultimately responsible for societal development. Changes or variations in household structure, size, production, or specialization can thus be read to indicate parallel changes in social stratification and political organization (cf. Bowser & Patton 2004; Earle 1997; Hastorf & D'Altroy 2001; Lyons 2007; Yoffee 2005:35-36). Each of these perspectives of household function provide a theoretical link between daily domestic activities, carried out by an 'average' social actor, and the larger society the households were a part of.

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[62] Critiques of structuralist approaches to household archaeology, and to domestic economy in particular, note that by setting up a dichotomy between 'private' houses and the 'public' realms of the community scholars impose modern Western assumptions of gender roles onto ancient societies (cf. Gero & Scattolin 2002:168-169). By denying the role of domestic production (associated with women) in the public economy, structuralist interpretations of ancient socioeconomic systems marginalize the contribution of women in ancient societies.

[63] The classic study of a house/household as a cosmogram was carried out by Pierre Bourdieu on a Berber household (1973; 1977). Bourdieu's interpretation of the symbolic organization of the space within the house contributed significantly to his later Practice Theory and idea of *habitus* – the premise being that the organization of the space within a house reveals information on social relationships and activities. This same organization *produces* and reinforces social structure (1977; 1990). See also Donley-Reid 1990; Giddens 1979; Glassie 1975. Such studies frequently blur the line between social household and physical house.

2.3.3 Assumptions in Household Archaeology

Archaeological interpretations of ancient societies involve assumptions regarding the relationship between human behavior and the recovered material culture. For the household archaeologist interested in reconstructing an ancient society from its foundations up, accessing the relationship between household and society is a multi-step process incorporating a number of such assumptions. First, we must identify and excavate archaeological houses at a given site. We then reconstruct domestic practice from the recovered remains and, building on the identified elements of domestic practice, develop a socioeconomic household profile. Finally, referring to a model of expected household function such as those mentioned above, we extrapolate elements of the larger society from the defined household characteristics. Inherent in this process are three central assumptions:[64] (1) that an archaeologist can accurately identify house structures in the material record; (2) that a physical 'house' represents a social 'household;' and (3) that ancient houses and households served similar social functions as modern and historical examples from comparable environments.

The first (1) of these basic assumptions, that the archaeologist conducting a household study has accurately identified a physical house, is both fundamental and difficult to verify – especially in prehistoric contexts. In common archaeological practice, ancient buildings are identified as 'houses' due to either (a) the presence of

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[64] For further discussion on the interpretive assumptions typical of household archaeological studies, see: Allison 1999; Carabello 2011; Nash 2009; Tringham 2001.

artifacts and features suggesting that 'domestic' activities[65] were carried out within them or (b) comparison with an established 'house' architectural type (Allison 1999; Chesson 2012; Wilk & Rathje 1982:618). Activities considered indicative of 'domestic' behavior (a) are typically those associated with household economy: food preparation/ consumption; craft production; small-scale storage; and household waste disposal. Most common of these activities is food preparation and consumption – indicated by the presence of hearths, utilitarian pottery or cookware, grinding stones, and floral/faunal remains. Craft production may be indicated by the presence of related features (e.g, kilns, forges, etc.) or cast-off byproducts (e.g., lithic debitage, metal or ceramic slag, spindle whirls, loom weights, etc.). Similarly, storage facilities are most often interpreted through the presence of installations (e.g., bins, cisterns, small rooms, storage jars, etc.), occasionally containing traces of the materials they were used to contain. Finally, domestic rubbish is recovered in the form of nearby exterior trash pits and/or middens. Cross-culturally, however, houses are composed of multi-functional spaces, public and private, "that are variously used for work, play, sleep, socializing, storage, and the performance of religious rituals" (Rainville 2005:4; see also Kamp 2000; Kent 1990; Otto & Gutenberg 2015; Rothschild 1991). This versatility in the functional use of house

[65] 'Domestic activities' are those typically associated with household practice: food production; small-scale storage; sleeping space; small-scale craft production; child-rearing; and rubbish deposits related to such processes. However, the archaeological identification of a house is based on a material relationship with these household activities, despite the recognized cross-cultural trend of household functions taking place beyond the house (cf. Chesson 2012; O'Connell *et al.* 1991; Rothschild 1991; Tringham 1995; 2001). The archaeological identification of a house is thus often based on circular logic that blurs the boundaries between 'house' and 'household.'

space adds a layer of interpretive complication.[66] Given their multi-functional nature, houses within the same sociocultural and economic system can reasonably display significantly different patterns of domestic material culture, especially within a limited sample size.

In the absence of well-preserved interior contexts, architectural forms and layouts recognized as house structures elsewhere in the region in question (b) enable archaeologists to identify probable houses without evidence for domestic activity. Such architectural comparison is valuable for understanding settlement composition and allowing for inter-site house comparison. However, while cross-culturally houses tend to facilitate similar functions – they provide protection from the elements, serve as a stage for daily economic and social activities, and as a space for social gatherings both within and beyond the household – their architectural forms and layouts can vary significantly within a relatively limited area according to environmental conditions, cultural expectations, and the economic resources of the resident household (Kamp 2000; Kent 1990; Kramer 1979; Watson 1979). Archaeologists must, therefore, be cautious in our reliance on architectural typologies. Furthermore, by assigning meaning-laden functional titles (e.g., 'house,' 'shop,' 'temple,' 'palace,' etc.) to a building type, we also run the risk of overgeneralizing the identified structures' social roles and coloring interpretations with preconceived expectations derived from modern buildings bearing the same name (cf.

[66] As explored in detail by Susan Kent (1990), there is a recognized correlation between increasing sociocultural complexity increasing segmentation within settlement structures. Internally, subdivided architectural spaces are more often used for specialized tasks than undifferentiated spaces. Kent suggests that "the reason why the amount of segmentation in the built environment and use of space is similar is because both are directly influenced by the amount of segmentation in culture. One index for the about of segmentation in culture is the amount of sociopolitical complexity present" (1990:148-149).

Hodder 1986; 1994). These risks are especially pertinent to prehistoric contexts, in which settlement and subsistence strategies may not yet be fully understood.

The second (2) general assumption, that a structural 'house' represents a social 'household,' presents interpretive challenges for how to best engage with the social meaning of settlement structures (and presumable houses). In their seminal 'Household Archaeology' article, Wilk and Rathje were quick to recognize that there is not necessarily a one-to-one correlation between a single house and a single household (1982:620; see also David & Kramer 2001). In some cases a household may be spread across multiple house structures,[67] while in other instances the members of multiple households may cohabit a single house[68] (Horne 1994; Kuijt 2000; Levi-Strauss 1982:174). In archaeological studies, however, this more nuanced relationship between house and household is frequently difficult to recognize. Strategies for detecting extended households spread over multiple houses focus on identifying evidence for the basic needs of a single household (e.g., food production, sharing of resources, work/storage spaces, transmission of property, etc.) irrespective of how many buildings it is distributed across (Brody 2011; Chesson 2012; Hammel 1984; Özbal 2012; Wilk & Rathje 1982).[69] Such methods are dependent on both a high quality of preservation and a

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[67] E.g., an extended family group residing in multiple houses but sharing essential resources, such as the extended households commonly found in the modern and ancient Near East (cf. Horne 1994:160; Kuijt 2000; Nishimura 2012).

[68] E.g., communal living contexts, such as the apartment-type housing identified in Neolithic Anatolia (cf. Düring 2006). For a possible example from the Oman Peninsula, see Building X at R'as al-Jinz 2 (Cleuziou & Tosi 2000:37).

[69] It is notable that this method is dependent on the assumption, proposed by Wilk and Rathje, that the houses occupied by a single extended household are likely to be situated in close proximity to one another (1982:620-621). See also Wilk 1984.

broad excavation exposure, which allows for access to the spread of houses potentially composing a household.

Instances where members of multiple households reside in a single house can also be exceptionally difficult (if not impossible) to recognize in the archaeological record. Structures serving more than one household may reflect the social divisions structurally (i.e., apartment units) or through duplicated features and/or material culture specific to each household unit (i.e., hearths, sleeping spaces, sets of ceramics, etc.; Düring 2006; Hoffman 1999). In the all too common case where preservation and/or excavation resources are insufficient to allow for the identification of nuclear, extended, or cohabiting households, the most expedient possibility of one household per structural house is typically assumed (cf. Blanton 1994; Kent 1990; Nash 2009; Otto & Gutenberg 2015; Parker & Foster 2012; Rainville 2012; 2015).

The third (3) assumption commonly found in household archaeology studies holds that houses and households in ancient societies served similar functions (practical, social, ideological, economic, etc.) in similar manners as do houses and households in modern or historical societies in comparable settings.[70] Within this line of thought, houses of the distant past are assumed to have served as the material stage for daily life and provided the basic structural necessities for those day-to-day practices (i.e., shelter, storage, production facilities, etc.), as do houses of the present. Similarly, household archaeologists expect that ancient households performed to meet the basic social and subsistence needs of their members, comparable to modern examples. For guidance

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[70] This refers back to the foundational assumption shared by all ethnoarchaeological research discussed above (see **Section 2.2.1a**).

regarding details of house physical characteristics and household structure and practice, archaeologists tentatively turn to the closest available ethnographic comparisons – social reconstructions of Umm an-Nar society, for example, heavily reference ethnographic research on modern Omani tribal groups (cf. Cleuziou 1997; Cleuziou & Tosi 2007; Costa 1983; see also Lancaster & Lancaster 1992; 1996). Yet, as in any ethnographic comparison, archaeologists are warned against reading too close a parallel between modern and ancient house/household structure and practice[71] – such traits are not necessarily static across time and space or limited to their modern frameworks. Cross-culturally, while houses facilitate the standard repertoire of domestic functions discussed above, they also support a variety of regionally, locally, or household specific activities that reflect their socioeconomic positions (Helms 1998; Müller 2015; Otto & Gutenberg 2015; Picardo 2015). Conversely, structures with specialized, non-domestic purposes (i.e., workshops, storehouses, temples, schools, etc.) may also incorporate domestic-type activities.[72] The degree to which each of these functions is represented in the archaeological record (a result of both taphonomic and behavioral processes) directly impacts how the building is likely to be interpreted.

[71] A general precaution stands agains the casual use of ethnographic analogy – "Only after the ethnographic case is fully understood and explained in its relevant variations can it be applied profitably to archaeological situations" (Sabloff 1983:418).

[72] In her review of traditional villages in modern Iran, Horne identifies a variety of non-house structural types integral to household/settlement function: "The Iranian Plateau is full of examples these special purpose buildings, many of which are found outside villages. All are built of mud brick, baked if necessary. They include the 'working buildings' described at length by Beazley and Harverson (1982), particularly cisterns, icehouses, water mills, windmills, and pigeon towers. They also include caravansaries, grape-drying sheds, tobacco storage buildings, *hammams*, watch or refuge towers, field shelters, pilgrimage stations, and houses for washing the dead" (1994:127).

It is therefore worthwhile to consider to what extent 'grey space,' or functional overlap between houses and buildings whose primary purpose is non-domestic but also serves some domestic or household role, is possible (or likely) in a prehistoric society. Is there necessarily a firm division between domestic and non-domestic structures, especially given the cross-cultural trend of houses serving as multifunctional spaces? Is it reasonable to expect a discrete 'house' form? And how close a parallel between modern and ancient house form, layout, and function should be expected? In archaeological contexts where the house/household tradition is not yet sufficiently understood to address these questions, it may be more productive to instead consider buildings in terms of presence/absence of evidence for domestic activity rather than to attempt assigning building titles (i.e., house, workshop, warehouse, temple, etc.). For example, rather than struggling to parse the difference between a house with a workshop space and a workshop with space reserved for domestic activities, both structures can be recognized as supporting (to varying degrees) a social household.

Additionally, while standard domestic activities and expectations are seen to vary by culture and time period,[73] household structure within a cultural system has been found to be remarkably consistent over long periods of time. Recent studies on the Ancient Near East recognize the household as the unifying cultural trait that stabilized society through otherwise destabilizing periods of sociopolitical change (cf. McCorriston 2011;

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[73] A well-documented example of the development of house form/layout and domestic activity over time can be found in studies of settlements in northern Mesopotamia. House and household during the third millennium BCE, contemporary with the Oman Peninsula's Umm an-Nar period, has been published in detail by Peter Pfalzner (1996; 2001) and in later periods by Elizabeth Stone (1997), Adelheid Otto (2006), Edward Banning (1996; 1997), David Schloen (2001), and others.

Schloen 2001; Ur 2014). As the society in question grew in complexity,[74] its foundational household social organization was also used to structure and legitimize larger social institutions (i.e., temple and state-level organizations).[75] It therefore appears that, while the details of house form/layout and domestic practice are adaptable through time and circumstance, household structure is a far more resilient entity. Thus, by untethering the social household from the house as a building type the potential interpretive impact of household archaeology for prehistoric societies is significantly increased.

2.3.4 Household Archaeology without Houses?

The three general assumptions we have just discussed introduce sources of possible oversimplification or misinterpretation into household archaeology studies. However, by recognizing them we are better able to pinpoint where and how household theory can be applied to archaeological contexts in a more flexible manner than typically prescribed. According to the traditional household archaeology approach, an archaeologist must be able to identify a house, connect the physical house with the social household through evidence of domestic practice, and interpret its social implications through comparison with an anthropological model. As discussed here and will be

[74] Cited examples include the patriarchal household functioning as a model of society during the development of urbanism during the fourth and early third millennium BCE in both southern (McCorriston 2011) and northern (Ur 2014) Mesopotamia and as a social and literary metaphor permeating all levels of society in Late Bronze Age Ugarit (Schloen 2001).

[75] Such studies view the extension of the household social structure to larger institutions as a stabilizing strategy for the growth of settlements and sociopolitical institutions (cf. Carballo 2011; Monaghan 1996; Schloen 2001; Ur 2014). As explained by Jason Ur, the expanded household model "assigns to actors motivations based on emic understandings of how institutions and relations between individuals were to be organized; it replaces functionalist models of ancient rational bureaucracy with an indigenously rational model based on the metaphoric extension of the household" (2014:250). It is, however, also worth recognizing that the recognition and definition of household structure in the cited studies is at least partially based on ancient textual accounts.

further detailed in **Chapters 3** and **6**, most Umm an-Nar settlement remains do not yet reasonably allow for such a straightforward progression of logic (i.e., the Umm an-Nar house tradition has yet to be defined). However, this does not necessarily preclude Bat's Umm an-Nar remains from a household-based interpretation.

Particularly pertinent to my research on Bat's settlement contexts is the cross-cultural observation that both houses and households are multifunctional entities that, although related, can exist independent of one another (cf. Allison 1999; Chesson 1996; Horne 1994; Kramer 1979; Wilk 1984). As noted in the previous sub-section, a recent trend in the archaeology of complex societies involves the identification of household structure (e.g., division of labor, hierarchy of household members, transmission of property and identity, etc.) and functions (e.g., providing for member physical and social necessities) in larger social institutions.[76] If, building on this trend, we accept that grey space may have existed (or, rather, is probable to have existed) between the modern concept of a house and structures with primarily non-domestic functions, then we may equally accept the likelihood of household structure also existing in these 'grey space' structures. It is, therefore, unnecessary to identify a building as a 'house' for it to fall under the purview of household theory.[77] Following conventional household archaeology logic, in my research at Bat I recognize evidence of domestic practice as suggesting the presence of a household social function/organization in the associated building. Various

[76] For examples from the Near East and Mesoamerica, see Carballo 2011; Monaghan 1996; Nash 2009; Schloen 2001; Ur 2014.

[77] As summarized by Penelope Allison: "It is important to break free from the idea of a household, in archaeological terms, as an architecturally dominated entity… This is also important for the many cases in archaeology where the structural remains of dwellings are either not extant in the archaeological record or they never existed. That is, a household, as a social entity, is not bounded by the identification of its 'house'" (1999:5).

structures excavated in Bat's settlements contained an assortment of evidence for domestic activity. While it may not yet be possible to fit these structures into a preconceived 'house' category, by strategically considering their use history and associated finds I attempt to identify a household structure in their functions and move toward a deeper understanding of Umm an-Nar society.

2.4 Conclusions: Settlement and Household Archaeology for the Umm an-Nar

Thus far in this chapter I have reviewed the socio-spatial theory that forms the foundations of both the archaeological analysis of settlement architecture and of household archaeology. Now, with this final section, I bring the archaeological context of the Oman Peninsula's Umm an-Nar Period (see **Section 1.3**) into consideration and develop a strategy for applying these methods to the settlement and domestic remains at Bat. The nature of Bat's Umm an-Nar occupational remains, distributed in clusters across the wadi valley and with varying qualities of preservation, creates a set of analytical and interpretive challenges that differ from those faced in regions where household archaeology has traditionally be carried[78] out but are typical of the Oman Peninsula. In order to cultivate a well-rounded understanding of the site's Umm an-Nar social organization, complexity, and lifestyle, I here propose a multi-scalar and context-specific strategy for investigating its settlement and domestic remains. Such a methodological

[78] Household archaeology has a successful history in Mesoamerica and the Near East, where domestic remains are often well preserved and clustered in such a way as to make them accessible to horizontal excavation. For New World examples, see Ashmore & Wilk 1988; Carballo 2011; Hendon 1996; Nash 2009; Pluckhahn 2010; Van Gijseghem 2001. For Near Eastern examples, see Brody 2011; Özbal 2012; Nishimura 2012; Parker & Foster 2012; Rainville 2012; 2015; Schloen 2001; Wattenmaker 1998.

toolkit can also be applied to ancient settlement sites across the Oman Peninsula.[79] It is my hope that this strategy will contribute to the widespread refinement of our understanding of Umm an-Nar lifestyles and social organization.[80]

2.4.1 Umm an-Nar Settlement Analysis

The Umm an-Nar Period is characterized by the blossoming of settlement sites across the region. As the peninsula's first phase of widespread settled society, the spatial organization within these settlements (of both architecture and more mobile forms of material culture) offers an unparalleled resource through which to observe the newly developing lifestyle and the social structure it supported. Until recently and for reasons discussed elsewhere in this dissertation,[81] a coherent analysis of Umm an-Nar settlements – especially of the small-scale, rectilinear architecture within them – has not been common practice in most archaeological field projects. However, in many ways, the ancient landscape of the Oman Peninsula is particularly well-suited to architectural analysis at the settlement- and (in select cases) household-scale. Umm an-Nar Period architecture is often far more accessible to archaeologists than that of Early Bronze Age sites elsewhere in the Ancient Near East because of environmental processes in the region. In the peninsula's interior (and to a lesser extent along the coast) these frequently

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[79] As in any archaeological study, nuances in the character and preservation of each settlement will impact the applicability and successfulness of each method. While I propose the following strategy as a template to fit Umm an-Nar settlement sites in their most common states of preservation, a degree of adaptation may be necessary to fit the particularities of each site.

[80] Umm an-Nar society as carried out by its living members in the Early Bronze Age, in contrast to the constructed model of society presented by the mortuary remains in Umm an-Nar tombs.

[81] Namely, an inordinate focus on the monumental and mortuary aspects of the Umm an-Nar settlement. The small scale architecture is infrequently explored to the extent where a settlement-wide analysis is possible. For further discussion on this trend in the history of archaeological research on the Oman Peninsula, see **Chapter 3**.

result in sediment deflation and/or erosion rather than accumulation. The result is a landscape where ancient stone building foundations are visible at or just below the modern ground surface, making it possible to piece together broad architectural plans with little-to-no excavation.[82] It is this very accessibility (and the probable erosion damage that comes with it) that is at least partially to blame for the infrequency with which such contexts have been excavated.[83] Yet, at sites with deflated contexts, careful architectural analysis is of the utmost importance as it is likely the most valuable and reliable source of social information that can be recovered from the preserved remains.[84] The great strength of such Umm an-Nar sites – the breadth and relative clarity of their architectural plans – renders them excellent candidates for many forms of architectural analysis at the settlement-scale.

The first step in the architectural analysis of Bat's (or any archaeological region's) settlements is to situate the sites and their architectural components on the landscape. It is common practice in archaeological research to note a site's location and proximity to natural resources and lines of transportation/communication. However, the significance of the Oman Peninsula's rugged terrain in the arrangement of and experience of being

[82] It must be noted that these plans are necessarily of lower clarity than those fully excavated sites. It may not be possible to clearly see all significant architectural features, especially more ephemeral interior features, and architectural phases are more difficult to identify. For an example of what can be achieved at such a site without excavation, see the discussion of al-Khutm in **Chapter 5**. For an example of what further clarity excavation can add to a site with high surface visibility, see the discussion of al-Zebah in **Chapter 5**. See also Döpper & Schmidt 2011; 2013; 2014; Schmidt 2013; Schmidt 2014; Schmidt & Döpper 2014.

[83] The likelihood of interior contexts being damaged by erosion and exposure render the visible small-scale architecture less appealing to archaeologists.

[84] Test excavations at a number of such sites have found the interior contexts of buildings to be either deflated, making identification of discrete or secure contexts extremely difficult, or highly damaged by erosion. In such scenarios, the architectural layouts provide the most secure source of sociocultural information at the site. For specific examples from Bat, see the discussions of the Settlement Slope and al-Khutm in **Chapter 4**.

within an Umm an-Nar settlement goes far beyond what can be communicated by a point on a map. In my approach, I suggest that the geographic orientation of Bat's settlements should be paired with a detailed description of their component architectural features, interaction with immediate landforms and resources, and visual connections with other significant locations on the broader landscape (see **Chapter 4**). This description will form the conceptual backdrop for more structured architectural analyses to come and will serve to anchor the settlements in an humanistic perspective, as a location where people lived and the day-to-day commonalities of Bat's Umm an-Nar society were carried out. Also essential to my architectural analysis is a digital, geo-rectified, architectural plan documenting the extent of remains for each of Bat's settlements.[85] These plans will serve as analytical templates for all following spatial analyses. Furthermore, tools provided by spatial modeling software, such as ArcGIS, also make it possible to incorporate changes in elevation into the digital plans, furthering my ability to account for the dynamic role the varied landscape played in the inhabitants' creation and use of Bat's settlement spaces.

As outlined above in **Section 2.2**, methods of architectural analysis, such as space syntax, use the physical parameters of the built environment (as represented by architectural plans) to determine probable patterns of associated human behavior. Within the scope of space syntax, two approaches in particular lend themselves to the types of architectural remains often found at Umm an-Nar settlement sites, including those at al-

[85] Bat's architectural plans are geo-rectified through ArcGIS, however similar digital modeling programs such as GRASS will provide comparable results. Such plans record the full extent of the settlement's accessible, surviving architecture. The digital nature of these plans allows for easy incorporation of additions or alterations as field research progresses.

Khutm and the Settlement Slope at Bat: access analysis and proxemics. The first of these methods (access analysis) is an approach to space syntax that identifies relative levels of privacy and accessibility within a building or set of buildings with the goal of connecting the restricted use of space to social complexity. This method combines the investigation of structural boundaries with graphic and statistical evaluations of connectivity within the built environment (cf. Bafna 2003; Banning 2010; Fisher 2009; Hillier & Hanson 1984; Steadman 2000). Access analysis uses schematic diagrams to consider how each space of a built environment is integrated within the larger structure, facilitating or restricting access to users in various parts of that environment.[86] Such diagrams illuminate which spaces are likely to have served as stages for social interaction and which have restricted entry. The contrast between inclusive and exclusive rooms is thought to reflect a hierarchical use of and access to the culturally defined space.[87] This relationship enables archaeologists to consider issues of status structures, social organization, and division of labor through architectural remains (cf. Dovey 1999; Fisher 2009; Steadman 2000). However, warnings from several scholars against the liberal application of access analysis to prehistoric built environments whose structural logic or 'syntax' is not sufficiently clear cannot be overlooked (Bafna 2003:19; Cutting 2003; Hodder 1991).[88]

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[86] For detailed and illustrated examples of how access analysis is carried out, see **Chapter 5**.

[87] A recognized anthropological trend sees a correlation between increasing social complexity and increasing social value of privacy (Hodder 1990; Lawrence 1990; Rapoport 1990; Sanders 1990; Steadman 2000; Wilson 1988). Within a building, the degree of structural separation or privacy is considered indicative of the resident's social status (cf. Dovey 1999).

[88] Likely the staunchest critic of archaeological applications of access analysis, Cutting argues that "typical prehistoric archaeological data are unlikely to provide sufficient material to justify the use of access analysis as a quantitative methodology. Applying access analysis to upper stories or roof spaces rests upon so many assumptions that the quantitative values thereby produced will be spurious, no matter how beguiling they may at first appear" (2003:18).

These scholars point out that, as the method's accuracy is dependent upon the locations of walls and especially doorways, coherence in architectural plans is essential if the results of access analysis are to have any meaningful value. Additional stories, rooftop access, and exterior spaces associated with building use are also frequently obscured in the archaeological record and can significantly affect a structure's access network.

As discussed in greater detail elsewhere (see **Chapter 5**), the architectural remains at Bat, and at most other known Umm an-Nar settlements, are not ideally suited for traditional access analysis of building interiors.[89] However, access analysis and the social logic it is based on may help to shed new light on the Umm an-Nar settlement and its spatial use of the natural landscape. Umm an-Nar settlements, including two of the settled areas at Bat, are frequently situated on steep or drastically uneven inclines adjacent to wadi beds or oases. In such cases, the integration of settlement architecture with the dramatically varied landscape creates networks of indoor/outdoor spaces between and among buildings, which structured resident movement and social activity in ways comparable to purely architectural spaces. Using rectified architectural plans overlaid onto digital elevation models (DEMs) of their landscapes, it is possible to deconstruct the spatial networks and social logic of Bat's most coherent settlements through the methods of access analysis.[90]

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[89] To briefly summarize, the level of architectural clarity and preservation at most Umm an-Nar sites often does not allow for full complete clarity in interior layouts or second stories. Additionally, the likelihood of architectural features or whole structures made from ephemeral materials (such as palm fronds) that are unlikely to have survived in the archaeological record further complicates the results of access analysis.

[90] See **Chapter 5** for further discussion on the applied access analysis methodology and its assumptions and limitations.

The second method of space syntax useful for interpreting Bat's settlement architecture is proxemic analysis. This method focuses on the human use and division of space as a cultural trait (Hall 1968; 1974; see also Aiello & Thompson 1980).[91] Divisions within a built environment and the size of its segments effect the possible uses of each space. More specifically, they place constructed limitations on feasible activities and numbers of participants, available or expected personal space, and accessible lines of vision.[92] Given the limitations of preservation and clarity in most Umm an-Nar architectural plans, including those from Bat, proxemic analyses are most aptly applied to the use and division of space between structures within a settlement and (conditions allowing) within key, well preserved buildings of that settlement. By assessing the organization of, lines of vision within, and probable movement through settlement space it is possible to identify socio-spatial focal points and culturally charged features of Bat's built environment.

Yet, as argued above, methods of spatial analysis such as space syntax cannot alone provide a coherent representation of an ancient culture's social organization and complexity. In order to round out our understanding of Bat's Umm an-Nar settlement architecture and its sociocultural implications, I suggest complementing the results of the spatial analyses with a culturally interpretive semiotic analysis and experiential investigation, such as viewshed analysis. However, for the prehistoric archaeologist the

[91] Edward Hall, the founding figure of proxemics, defines the topic as "the interrelated observations and theories of man's use of space as a specialized elaboration of culture" (1966).

[92] Notable archaeological studies examining structural proxemics have focused on the interpretation of social boundaries (Düring 2001; Fisher 2009; Steadman 2005), territoriality (Altman 1975; Ashcraft & Scheflen 1976; Rosenberg 1998; Steadman 2005), and concepts of public vs private within and between buildings (Byrd 1994). For a review of the anthropological developments of proxemics, see Gillespie & Leffler 1983; Sanders 1990. See also: Hall 1966; 1968; 1974; Watson 1970.

precise semiotic or hermeneutic meaning instilled in cultural objects or the built environment is often beyond direct interpretive reach.[93] Nevertheless, in certain cases semiotic messages may be roughly inferred through the contextual evidence of human behavior. By identifying what examples of material culture in a given context likely carried significant meaning and linking them with the social behavior they invoked, elements of the cultural messages can be recognized. In the case of the prehistoric settlements at Bat, the spatial focal points identified through proxemic and access analyses are likely to have carried cultural significance and embedded semiotic messages. By integrating these spatial points with their architectural settings and associated portable material culture, it is possible to evaluate the contexts' evidence for social behavior, their position within the broader built environment, and their possible implications for Umm an-Nar culture (see **Sections 5.2**).

Additionally, the spatial-experiential viewshed analysis tool available through GIS software provides a further means of enhancing my interpretation of Bat's an-Nar settlements.[94] Viewshed analysis uses the geo-rectified settlement plans and their corresponding DEMs to calculate the possible field of vision from any given location on the landscape (cf. Lake & Woodman 2003; Llobera 1996; 2001; 2006; 2007; Thomas 1993; Whitely & Gillings 2000; see also **Section 5.2**). Of the human senses, vision plays

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[93] The archaeologist's ability to interpret symbolic meaning is enhanced by contemporary texts and/or artwork, frequently absent from prehistoric contexts.

[94] While I find the viewshed analysis function to be the most applicable to the settlement contexts at Bat (and, I argue, at any Umm an-Nar site with topographically varied terrain), the powerful geo-spatial toolkit available through ArcGIS and other comparable software offers many other potentially useful analyses.

the largest role in informing our experience of a setting or environment.[95] An analysis of a location's visual experience is thus both extremely valuable in reconstructing its social/experiential significance and easily comprehensible to the analyst. The method's visual foundations provide a structured experiential lens through which to envision the syntactic and semiotic readings of the same setting. Similarly, the results of a viewshed analysis, calculated according to the GIS model's rectified spatial parameters, can be used to ensure a degree of interpretive robustness in experiential analyses. This technique thus provides a methodological middle ground between phenomenology and more structuralist approaches to the environment. Given the visually restrictive hills and ridge lines that characterize much of the Oman Peninsula, and the consistent importance of monuments (structures intended by definition to be visually commanding) in Umm an-Nar settlements, viewshed analysis has the potential to significantly contribute to our understanding of the Umm an-Nar social landscape, lifestyle, and spatial organization at Bat and beyond.

2.4.2 Umm an-Nar 'Household' Analysis

However, as discussed above (see **Section 2.3**), architectural analysis at the settlement level cannot alone achieve our goal of reassessing Umm an-Nar social organization and lifestyles. In order to obtain the level of archaeological detail necessary for a household level investigation, we must move away from the easily identifiable sites preserved at surface level and consider the less well-known Umm an-Nar settlements

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[95] A variety of studies suggest that visibility networks within a built environment may be more informative guides to human behavior than connectivity networks that do not take lines of sight into account (cf. Lake & Woodman 2003; Llobera 2006; 2007; Penn 2003; Turner *et al*. 2001; Whitely & Gillings 2000).

(such as Bat's sites of al-Khafaji and portions of the Settlement Slope) where sediment has aggregated around and above the preserved archaeological remains. It is these buried sites and their sealed contexts that have the greatest potential for revealing elements of Umm an-Nar life-ways.

Umm an-Nar settlements that are sealed beneath accumulated sediment have the advantage of having been protected from the gradual damaging effects of weather and human and animal activity. Yet, even the most well preserved Umm an-Nar settlement structure can (and often does) present challenges to the household archaeologist. In buried examples of small-scale architecture excavated at Bat and other settlement sites,[96] the buildings are frequently found having been cleaned out either by their Umm an-Nar inhabitants upon abandonment or by subsequent occupants during later periods of reuse. Consequently, structures possibly representing Umm an-Nar houses often contain little of the material culture necessary for common household archaeology methods like activity area analysis.[97] Nevertheless, even in cases where buried settlement structures are found containing little to no portable material culture or traces of domestic activity, details in their architectural composition and evidence of changes made to structures over time are far more likely to have survived than those at sites exposed to the elements. Keeping in mind that settlement (and presumably domestic) buildings played an important and active

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[96] For further detail on Bat's settlement contexts, see the **Chapter 6** sections on al-Khafaji and the Settlement Slope. For discussion on the results of settlement contexts elsewhere on the Oman Peninsula, see **Chapter 3**.

[97] Such methods include activity area analysis (Flannery 1976; Kent 1984; 1990; Pfälzner 2003), microarchaeology (Rainville 2003; 2005; Ullah & Banning 2007; Ullah 2012), microstratigraphy (Matthews 2003; 2005b), and household foodways – archaeobotany and archaeozoology (Ataly & History 2006; Meadows 1999; Rosen 2012).

role in Umm an-Nar (material) culture, such structural details and changes can be explored as a means of accessing the lives, behaviors, and social standings of the resident individuals. I therefore suggest pursuing a strategy of household archaeology that engages both the preserved artifacts and activity areas and the fine details of the household architectural setting. In my research at Bat, I approach such architectural nuances both diachronically from the perspective of building use-life and culturally through the interpretive lens of vernacular architecture. Finally, in instances where material culture and activity areas are recovered in association with a structure, I use the precise spatial and temporal contexts of the artifacts to further inform my interpretation of the socioeconomic household they were used by.

In a household archaeological study considering a structure's use-life, the archaeologist investigates how that building was used and altered over the course of its existence – from initial construction to ultimate abandonment or destruction (cf. Herrmann 2011:333-415; Matthews 2005; Stevanovic 2012; Stone 1987; Tringham 1994). Buildings, like people, exist in terms of time cycles (daily, seasonal, generational, and life) that impact their use (Foxhall 2000). The lifecycle of a building (especially one serving a household function) is closely linked to the lives of the individuals who occupy it (Carsten & Hugh-Jones 1995; Parker-Pearson & Richards 1994).[98] As such, the ways that those structures are used and maintained vary over time depending on the needs and

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[98] "Architectural modifications and alterations, and even re-plastering and cleaning are often 'made to coincide, in various ways, with important events in the lives of their occupants and are thought of in terms of them' (Carsten & Hugh-Jones 1995:39)" (Matthews 2005a:126).

"The lifecycle of artefacts, structures, and spaces are entwined with the lifecycle of humans… Lifecycles and life stages of things and the people associated with them are not fixed or evolutionary, though they may be recognizably (if not entirely regularly) patterned" (Foxhall 2000:485).

means of their users/occupants. Furthermore, major physical changes made to them often coincide with major life events of their residents (Carsten & Hugh-Jones 1995). However, identifying and reading such events is not always a straightforward process. As Lin Foxhole (2000) and Wendy Matthews (2005) have addressed, in archaeology there is a constant tension between the short-term cycles that determine social and household practice and the long-term perspective provided in the archaeological record. By examining the minutia of small changes made to a building over the finite course of its use-life, we can begin to reconstruct its shorter-scale cycles and major one-time events (cf. Hermann 2011:333-415). The rectilinear Umm an-Nar structures excavated at Bat's sites of al-Khafaji and the Settlement Slope all demonstrate a number of use and construction phases. By moving through each structure's sequence of modifications, I identify the major phases of its use-life and, through them, piece together the life-cycle of the Umm an-Nar household.

As a means of complementing and building upon the diachronic perspective of a structure's use-life, I suggest also considering such Umm an-Nar buildings as examples of vernacular architecture – or structures built by their users (rather than by specialized craftsmen), constructed of local materials, and reflecting community needs, traditions, and beliefs[99] (cf. Bleir 2006; Deetz 1977; Glassie 1975; 2000). Within the built environment of Bat's settlements, all non-monumental structures[100] fall under the

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[99] Although often specifically applied to domestic architecture (i.e., houses), the classification of 'vernacular architecture' is applicable to any non-elite structure built by the individuals or population who then use them (Bleir 2006:230).

[100] For an in-depth discussion on the many monuments of the Bat landscape and their social implications, see Cable 2012.

conceptual umbrella of vernacular architecture.[101] The creation and use of such architecture is understood as an organic and active part of the social process, reflecting the social functions that the building facilitates and how the structural requirements of those functions change over time (Bleir 2006:234-237). By examining how such a structure was assembled, what materials it incorporates, and how it was altered over the course of its use-life, archaeologists can observe the reflexive structuring relationship that exists between building and builder agency (i.e., how did the builders choose to shape the spaces that would then structure their daily lives?).[102] Similarly, the cultural meaning(s) communicated by a vernacular building is understood as being naturally embedded in the structure as part/a result of its social function (Bleir 2006:237, 241-242). By observing both change and continuity in building form over time, significant architectural traits – focal points of either persistent change or continuity – can be identified and assessed for

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[101] The social production of space is recognized as a dialogue between the built environment, the agents using and occupying it, and their material culture (cf. Guengerich 2014; Hendon 2010; Hutson 2010; Ingold 1993; Love 2014; Pauketat & Alt 2005; Thomas 2008; Tilley 1994; 2005; 2009). This relationship is especially clear in vernacular houses, where the resident household played an active role in the creation of the house (Guengerich 2014:1).

[102] The reflexive relationship between a building and the culture that built it is most often examined from the perspective of the structure a building imposes on its users, rather than from that of the structuring cultural actors that determined the parameters of its construction and subsequent use. As Anna Guengerich (2014) argues, by considering the decisions made by the builders during the construction of vernacular architecture we can more fully understand the cultural agency involved in this relationship. "How and why did reflective builders with variable degrees of knowledge make decisions about the material features of residences, and how did they attempt to achieve these ends using the resources available to them in particular environmental and social circumstances?" Decisions made regarding building form (and layout) thus demonstrate how its initial builders/users, as social agents, chose to structure the spaces that shaped their daily lives. Guengerich argues that it is "important to not only identify the outcomes of human actions, but also to elucidate, as far as possible, the factors that led agents in a particular social and cultural contexts to undertake them" (2014:2).

potential semiotic or experiential meaning.[103] By focusing on excavated examples from al-Khafaji and the Settlement Slope, I am able to consider the social agency and cultural meaning implicit in the varying architectural forms (i.e., how the buildings were constructed and altered over the course of their use) that occur in Bat's settlements.

Finally, interpretations of building function and household structure must in part rely on their associated material culture (however scant it may be). The discovery of portable material culture within small-scale Umm an-Nar structures is the exception rather than the rule. Yet, when such finds are discovered they, along with structural installations and trace evidence of human behavior, play a key role in the characterization of that building. Conventionally, household archaeological studies treat such in situ finds as being indicative of activity areas – the location(s) in space where one or more individuals carried out a certain task or set of tasks.[104] Activity area analysis, often used to study such assemblages, considers each area's socioeconomic implications based on its size, location, and context (cf. Kent 1984; 1987; 1990; 1991). This method has the benefit of engaging directly with both the portable material culture found within a

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103 The concept of cultural messages, especially those communicating political power and authority, is commonly applied to monumental structures (cf. Joyce 2000; Joyce 2004; Pauketat 2000; Smith 2003). However, a recent trend in archaeological studies of vernacular architecture attempts to explore communication of political structure and identity in domestic houses and other types of small-scale architecture (cf. Feinman *et al.* 2000; Guengerich 2014; Henderson & Ostler 2005; Lyons 1996; 2007; Pauketat & Alt 2005; Smith 2000; Wynne-Jones 2013). Diane Lyons finds that "domestic houses are active political locales integrated into the larger political landscape (2007:179) and that it "is through the process of constructing and interacting through material culture including buildings, that people experience, create, and reproduce personal and social identity, maintain tradition, and negotiate positions of authority" (2007:180).

104 Activity areas can be interior or exterior spaces that may or may not be defined architecturally and feature a concentration of artifacts or ecofacts indicative of a certain type(s) of task – typically food or craft production. For more detailed discussion on activity area analysis, see Binford 1978; Brooks & Yellen 1987; Kent 1984; 1987; 1990; 1991; and Oswald 1987.

domestic context and the spatial/architectural setting of the 'house.'[105] However, activity area analysis too has its limitations, especially in contexts with complex temporal depth such as those excavated at Bat's settlements of al-Khafaji and the Settlement Slope.

One such weakness is that activity area analysis considers the household as a productive unit dedicated (to some degree) to the task(s) identified in the archaeological remains of the house during a single phase of its use-life. But, as we have discussed, houses move through any number of phases throughout the course of their existence and, without evidence of repeated behavior, activity areas within them cannot be assumed to have remained consistent over time. Additionally, many of the artifacts recovered from a domestic structure may not be directly associated with an activity area.[106] In such cases, as Vincent LaMotta and Michael Schiffer point out, house assemblages of portable material culture cannot "simply be interpreted *a priori* as tool-kits or 'house inventories' related to the activities" (1999:20).[107] In light of these limitations, we can then recognize the contexts within the small-scale building remains at Bat as each containing an assortment of stand-alone artifacts and occasional activity areas. While it is not possible

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105 As discussed above (see **Section 2.3**), in the majority of cases it is the portable material culture (the artifacts and ecofacts) that are the foundation for identifying a context as 'domestic' in nature or a building as a 'house.' "It is these house contents, the 'nonfixed-feature' elements (Rapoport 1990:96-101), of which there may often be considerable wealth in archaeological remains, which are not part of the architecture but which are evidently part of the household and which must surely constitute a major contribution to insights into household behavior and relationships between social action and the material. While it is very difficult to use this material to identify the nature and quantity of the members of a household and their interrelationships, the patterns which this material produces, however ephemeral and whether or not delimited by architectural remains, must surely give us greater comprehension of the range and distribution of the activities, and possibly behavior and ideologies within these households" (Allison 1999:6).

106 In order to be considered an activity area, at least two in situ artifacts must be discovered in proximity to one another or further evidence for activity (e.g., associated instillations, rubbish, or by-products).

107 LaMotta and Schiffer further argue for a careful assessment of site formation processes, particularly those observed in house contexts elsewhere, which may have contributed to the state of the domestic remains at the time of excavation (1999).

to connect every artifact/ecofact to an activity area, all (both artifacts and activity areas) can be linked to one of the finely-tuned structural phases identified in Bat's excavated structures during use-life analysis. The domestic artifacts and installations from each discrete phase can then be more confidently interpreted as coming from a single, secure context. These phases and their remains can be further compared to one another in hopes of revealing internal patterns of diachronic recurrence or variation in installations, activity areas, or non-fixed material culture.[108] Through this process, I develop a diachronic and contextually sensitive profile for each of Bat's excavated small-scale structures, which enable me to interpret their social functions and household structures.

2.4.3 Summary

Umm an-Nar Period settlements such as those at Bat represent the physical frameworks for daily activities and sociocultural interactions of this early sedentary society. In this chapter, I have suggested that the thus far underutilized small-scale architecture and domestic contexts within Bat's settlements have the potential to greatly expand and refine our understanding of Umm an-Nar social organization and lifestyle. Furthermore, in this section I have endeavored to create a methodology that responds both to Bat's unique characteristics as an archaeological site and to the broad questions of Umm an-Nar social organization faced by the archaeological community of the Oman Peninsula. The combination of experiential, spatial/architectural, and contextual analyses creates a well-rounded perspective of the Umm an-Nar settlements at Bat that is both

[108] In this methodology, I am following a system developed by Virginia Hermann for her work at in the lower town of Zincirli in southern Anatolia (2011). Zincirli's lower town exhibits similar taphonomic contexts to those at Bat, the key complicating factor of which is a blurring of stratigraphic distinctions and (most pertinently) earthen architectural features such as clay floors or mudbrick walls.

spatially and temporally multi-scalar. As this chapter has shown, it is only with such a multifaceted and detail sensitive approach that the unseen nuances of Umm an-Nar social organization and use of space can be teased out.[109] In the chapters to come, I systematically apply these methods to Bat's settlements – beginning at the broad perspective of each settlement's architectural composition (see **Chapter 5**) and then move on to the more detail oriented evaluation of excavated settlement structures (see **Chapter 6**).

[109] The more refined our understanding of Umm an-Nar building function and use of space becomes, the more accurately we can apply methods (such as population estimation) that depend on such accurate interpretation. Additionally, it is only through detail-oriented excavation methods that traces of ephemeral architecture (such as date palm structures) or human activities (such as textile production) might reliably be recovered.

CHAPTER 3:

THE UMM AN-NAR SETTLEMENT AND HOUSE IN REVIEW

3.1 Introduction

If, as discussed in **Chapter 1**, the Umm an-Nar Period of the Oman Peninsula is marked by widespread sedentization and increasing social complexity, what does the Umm an-Nar settlement tradition look like in the archaeological record? Although this shift in lifestyle is repeatedly noted as one of the period's defining characteristics (cf. Cleuziou 2002:192; 2003:136-137; 2009; Cleuziou & Tosi 2007:141-148; Magee 2014:98; Potts 1991:98-100; 2001:39-41; 2008; Tosi 1986), scholarly understanding of the social phenomenon is based on a surprisingly narrow selection of excavated sites. Indeed, reconstructions of Umm an-Nar social organization and lifestyle disproportionately depend on evidence from two coastal sites: the settlement on Umm an-Nar Island (cf. Friflet 1995) and the exceptionally well-preserved coastal settlement of Ra's al-Jinz (cf. Azzarà 2009; 2015; Cleuziou 2002; 2003; 2009; Cleuziou & Tosi 2007). Yet, Umm an-Nar settlement sites have been identified and researched, with varying degrees of intensity, throughout the Oman Peninsula. With this chapter, I review the current state of knowledge regarding the Umm an-Nar settlement tradition as it is represented in the published literature. Through this survey, I show the compositional diversity of sites that have been interpreted as Umm an-Nar settlements and, within them, buildings that have been interpreted as Umm an-Nar houses. While great strides have been made in recent decades in the research of Arabian Early Bronze Age, I argue that in order to further refine our understanding of the Umm an-Nar settlement tradition, lifestyle, and society as a whole, we must work toward a more balanced representation of sites from all regions of the Oman Peninsula.

3.2 Identifying the Umm an-Nar Settlement

The Umm an-Nar settlement and its constituent components are subjects of increasing interest in the archaeology of the Oman Peninsula (cf. Abar *forthcoming*; Azzarà 2009; 2015; *forthcoming*; Dollarhide *forthcoming*; Döpper & Schmidt 2013; 2014; *forthcoming*; Düring *forthcoming*; al-Jahwari 2008; *forthcoming*; al-Jahwari & Kennet 2008; 2010; Kerr 2016; Power *et al*. 2017; Schmidt & Döpper 2017). Yet, the criteria used to identify an Umm an-Nar site as a settlement and, within that site, individual buildings as houses are not always consistent or explicitly stated. As discussed in **Chapter 2**, both settlements and houses are flexible, multifunctional entities that defy precise definitions. However, in order to productively consider the social implications of such sites and structures and to make inter-site comparisons, it is necessary to establish some general parameters. With this section, I go beyond the general definitions developed in the previous chapter and work towards broadly defining the Umm an-Nar settlement and house.[110]

As defined in **Chapter 1**, a settlement is the location where a socially connected (through kinship, culture, identity, and/or economy) group of people, numbering greater than a nuclear family, live and interact on a permanent or semi-permanent basis

[110] The Umm an-Nar settlement, house, and household will be further discussed as they specifically pertain to the site of Bat in **Chapters 5** and **6**.

(Ashmore 2002; 2005; Flannery 2002; Horn 1994; Kamp 1987; 1993; Kramer 1979; 1982; Kuijt 2000; Smith 2010; Steadman 2000; 2015; see **Section 1.2**). While the size and structural organization of settlements vary across time and space, any given example will be composed of a mixture of built and unbuilt areas that support the social and economic needs of the inhabiting community. Typical uses of settlement space include: domestic areas (i.e., houses and associated outdoor space), community gathering places, production areas, storage areas (public and/or private), corridors of movement, and specialized spaces and/or structures (e.g., temples, administrative buildings, defensive structures, monuments, etc.). Although it is not necessary for a settlement to incorporate spaces specifically dedicated to each of these purposes, at a minimum a settlement will feature areas (specialized or multifunctional) for household/domestic activity,[111] communal gatherings, and public interaction (Ashmore 2005; Costa 1983; Horn 1994:87-125; Smith 2003; Steadman 2011; see **Section 1.2**).

The quintessential profile of an Umm an-Nar settlement consists of a centrally placed, circular tower monument surrounded by an assortment of rectilinear domestic architecture and a nearby tomb or tombs (Cleuziou 2003:144; Cleuziou & Tosi 2007:139-148; Magee 2014:101). This image can be traced back to the early British, Danish, and American archaeological surveys of the Oman Peninsula in the 1960s and 70s (Bibby 1969; 1973; de Cardi *et al.* 1976; Frifelt 1975; 1979; Hastings *et al*. 1975;

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[111] Archaeological indicators for domestic activity, or activity related to the basic functions of the social household, include but are not limited to: evidence of food preparation such as hearths, ovens, and cooking paraphernalia; evidence of storage such as jars, pits, bins, or small rooms; evidence of waste disposal such as rubbish accumulation outside of structures or trash pits; and evidence of small-scale craft production (cf. Allison 1999; Hendon 2004; Kent 1990; O'Connell *et al*. 1991; Tringham 1991; 1994; Wilk & Rathje 1982; see **Sections 2.2** and **2.4**).

Humphries 1974).[112] Such initial exploratory surveys documented the location and form of archaeological remains across wide regions, but their results are necessarily unrefined in terms of site periodization and interpretation. Umm an-Nar towers, or 'walled enclosures' as they were first described,[113] feature prominently in these early survey results because they are the most visually dominant Early Bronze Age features on the landscape. Since small-scale, rectilinear structures, pottery scatters, or other indicators of occupation[114] were often found in close proximity to such monuments, the towers themselves came to be considered indicative of Umm an-Nar settlements (cf. de Cardi *et al*. 1976:164-7, 172-5; Frifelt 1975:364-6; Hastings et al. 1975).

Subsequent research has greatly expanded our knowledge of Umm an-Nar material culture, site types, and their distributions. Yet, the diversity of the identified sites has served to emphasize the versatility of the Umm an-Nar lifestyle(s), rather than to clarify the form of the Umm an-Nar settlement. The wide range of environmental zones that exist on the Oman Peninsula (cf. Carter 1997; see **Section 1.3**) undoubtedly resulted in the development of multiple, parallel Umm an-Nar subsistence strategies (cf. Cleuziou

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[112] "Probably the most significant feature of the larger structures and monuments is that they are with few exceptions all circular or oval in plan. The rectangular straight walled building seems to have been almost unknown among the earlier structures" (de Cardi *et al*. 1976).

"In the course of two seasons of survey the Harvard Archaeological group has located seventeen settlements which, on the basis of associated ceramics, stone structures, lithic and copper remains, can best be attributed to the Third Millennium BCE… The prehistoric settlements in Oman are generally not marked by a pronounced mound or 'tell'… all have a central elevated walled structure. These structures are surrounded by lesser domestic buildings and by cairns" (Hastings *et al.* 1975).

[113] In a recent article, Cable and Thornton argue that this early description is likely more accurate than then commonly used 'tower' terminology. However, as the term 'tower' has since become generally accepted in the archaeological literature, they suggest that attempting to revise it now would introduce unnecessary terminological confusion (Cable & Thornton 2013).

[114] Such indicators include hearths, stone enclosures, and debris from metallurgical or stone tool production (cf. de Cardi 1970; de Cardi *et al*. 1976; Frifelt 1971; 1975; 1979; Hastings *et al.* 1975; Humphries 1974).

1996; Cleuziou & Tosi 2007:230-234; Costa & Wilkinson 1987; Deadman 2012; Giraud & Cleuziou 2009; Gergoricka 2011; al-Jahwari 2009; Potts 1990; 1991; 2000; Smith 2001). In the archaeological record, these strategies are reflected in the compositions of sites that are found in the peninsula's various regions. For the purposes of this chapter, I consider Umm an-Nar sites as they occur in three broad regions: (1) the eastern (Batinah) and southeastern (Ja'alan) coasts,[115] (2) the northwestern (Gulf) coast and Horn of Oman, and (3) the Omani interior within and to the south and west of the Hajar Mountains (see **Section 3.3** below). Of these regions, the distinctive Umm an-Nar monumental towers are found at numerous sites interpreted as settlements throughout the Gulf Coast, the Horn, and the Omani interior, but are absent at occupational sites along the Batinah and Ja'alan coasts. In contrast, rectilinear architecture has so far been found which much greater frequency (but not consistently) at sites in the interior and along the Ja'alan Coast than at sites on the Gulf Coast and Horn of Oman, where occupation seems to have been more ephemeral.[116] It, therefore, appears that, even from this coarse perspective, there is no single structural template of an Umm an-Nar settlement that can be applied across the Oman Peninsula. In the examples discussed below (see **Section 3.3**), sites are instead identified as settlements based on the presence of evidence for domestic-type activity, agriculture, and/or rectilinear architecture.

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[115] Ongoing research is investigating the Early Bronze Age sites on the broad Batinah Coast. However, little information is yet available in the published literature. Although the Ja'alan and Batinah coasts feature differing environmental characteristics, sites in these two areas are considered together in this dissertation because of the limited available information.

[116] In these cases, it is possible that settlement architecture was constructed of materials that have not preserved in the archaeological record, such as reeds, palm fronds, or mudbricks (cf. Costa 1985; al-Jahwari 2008; al-Jahwari & Kennet 2010; Phillips 2007). See **Section 3.3.1** for further discussion.

The Umm an-Nar lifestyles and substance strategies that are posited for the various regions of the Oman Peninsula also have implications for which sites are considered to be settlements. Particularly relevant is the theory that some portion of the Umm an-Nar population followed a cycle of seasonal migrations and/or a mobile pastoralist lifestyle (cf. Cleuziou & Tosi 2007:230-234; Costa & Wilkinson 1987; Döpper & Schmidt 2014; Lancaster & Lancaster 1992; Potts 2001:28-34; 2009). Arguments for seasonal migrations are especially convincing for the Ja'alan Coast, where the maritime resources and available agricultural land are unlikely to have been sufficient to support a large population year round (cf. Cleuziou & Tosi 2000; Lancaster & Lancaster 1992).[117] From this perspective, larger coastal sites, such as Ra's al-Jinz, represent seasonally occupied settlements, while smaller, more ephemeral sites rather represent temporary encampments (Cleuziou & Tosi 2000:41-44; see **Section 3.3.1** below).

A contrasting picture of the Umm an-Nar lifestyle has been reconstructed for sites along the Gulf Coast and in the Horn of Oman. Environmental conditions in this region provide greater access to agricultural land and more accommodating maritime resources in the summer months than found on the Ja'alan Coast (Cleuziou 2003:140; Magee 2014:104-105). Such year-round stability would have made possible sedentary lifestyles dependent on agriculture, local pastoralism, and the exploitation of maritime resources. Further evidence supporting the idea of a sedentary population in this region has recently been presented by Leslie Gregorica (2011), who carried out biochemical analyses on

[117] According to these reconstructions, the coastal settlements, such as Ra's al-Jinz, were occupied by a combined community during the portions of the year when fishing and maritime trade were particularly productive (i.e., October to March). During seasons of maritime scarcity (i.e., April to September), the populations would disperse in order to take advantage of the more accommodating environments of the interior oases and pasturelands (Cleuziou & Tosi 2000:41-44).

human remains from Umm an-Nar tombs at Tell Abraq, Umm an-Nar Island, Mowaihat, and Shimal. Rather than indicating a seasonally or regionally mobile lifestyle, the results of Gregoricka's isotopic analyses reveal dietary patterns consistent with a purely local subsistence strategy (2011:331; see also Gregoricak 2013). In accordance with this environmental and biochemical background, small sites in this region with evidence of domestic activity but no rectilinear architecture are commonly interpreted as small settlements whose buildings were constructed of materials that do no survive in the archaeological record (e.g., palm fronds or reeds; cf. Beech *et al*. 2004; de Cardi 1997; Eddisford & Phillips 2009; Phillips 2007; al-Tkriti 1985a; 1989; see **Section 3.3.2** below).

A third lifestyle and subsistence strategy is probable for the Umm an-Nar populations who inhabited the Omani interior, where sites are typically located near or within oases and wadi valleys. These sites occur in a wide rage of sizes and structural compositions (see **Section 3.3.3** below) and often provide clear evidence for agricultural activity (e.g., Hili, Bat, Bisya, and others; cf. Cleuziou 1982; 1989a; 1997; al-Jahwari 2009; Potts 1993a; Tengberg 1998; see also **Section 5.2**).[118] Although isotopic data is not yet available for Umm an-Nar populations residing in this region, the reliable access to water found in the oasis centers makes year-round occupation possible. Furthermore, the effort necessary to build and maintain the substantial architecture found at large oasis sites (e.g., Hili, Maysar, Bisyah, Khashbah, and Bat) suggest that they were occupied

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[118] Such evidence include carbonized seeds and impressions of domesticated cultivars in mudbricks, as well as the remains of possible irritation systems (cf. Cleuziou 1982; 1989a; 1996; al-Jahwari 2009; Potts 1993a; Tengberg 1998).

throughout the year by at least some of their population. Small sites are less well-known in this region than they are along the coasts. In effort to locate what they interpret as small agricultural villages, Nasr al-Jahwari and Derek Kennet have recently suggested a strategy of using intensive walking surveys and densities of pottery scatters to identify the probable locations of such sites (2008).[119] However, the identification of any sherd scatter as an Umm an-nar settlement must necessarily be considered as tentative.

Within sites identified as Umm an-Nar settlements that feature non-monumental architecture, specific buildings have occasionally been interpreted as Umm an-Nar houses (cf. Azzarà 2009; 2015; Cleuziou & Tosi 2000; Döpper & Schmidt 2013; 2014; *forthcoming*; Frifelt 1995; al-Jahwari & Kennet 2010; Weisgerber 1980; 1981). As defined in **Chapter 1**, a house is a building that serves as the primary dwelling space for the social household. Much like the settlement, houses are multifunctional spaces that can vary significantly in size and structural composition (cf. Allison 1999; Carballo 2011; David & Kramer 2001:284-302; Hendon 2010; Hutson 2008; Kent 1990; Rainville 2012; Rapoport 1969; 1982; Steadman 1996; 2010; Wilk & Rathje 1982; see **Sections 1.2** and **2.4**). In the absence of a well-established house structural type, a building can be identified as a house through its association with evidence for domestic-type activity (e.g., small-scale food production, storage, craft production, waste disposal, etc.). In the examples discussed below (see **Section 3.3**), buildings are typically interpreted as houses based on the presence of storage and food preparation contexts within or near them.

[119] Al-Jahwari and Kennet suggest that small agricultural settlements from the Umm an-Nar Period are unlikely to survive or, to the extent that they do survive, be identified in the archaeological. This is due to the ephemeral materials that were most likely used to construct their buildings (e.g., palm fronds) and the aggregation of sediment in the wadi valleys where they would have been located. In absence of clear sites, the authors argue that sherd scatters "can be used as a 'proxy' for settlement" (2008:208).

Putative Umm an-Nar houses take the form of either agglomerative structural compounds composed of numerous rectangular rooms arranged around central courtyards (e.g., the northern command at Ra's al-Jinz 2, Haus III at az-Zebah, possibly the 'houses' at Umm an-Nar Island, and compounds at the al-Khutm settlmement; cf. Azzarà 2009; Cleuziou & Tosi 2000; Döpper & Schmidt 2013; 2014; Frifelt 1995; see also **Sections 4.3.2** and **5.4**) or freestanding rectilinear buildings composed of two or more rooms and occasionally a walled courtyard (e.g., Maysar-1, Building III at Ra's al-Jinz 2, and buildings on the Settlement Slope at Bat; cf. Azzarà 2015; Cleuziou & Tosi 2000; Frifelt 1985; Weisgerber 1980; 1981; see also **Sections 4.3.2** and **6.3**). These structures vary in size, construction style,[120] and layout (see **Section 3.3** for further detail). Yet, such structural diversity is not out of keeping with the varied lifestyles expected in the Oman Peninsula's different environmental zones. Consistent Umm an-Nar house building types are, perhaps, more likely to exist within each geographic and environmental region than consistently throughout the peninsula. Potentially more problematic are instances when the presence of rectilinear architecture at an Umm an-Nar site are presumed to represent houses without the confirmation of exploratory excavations (cf. Cleuziou & Tosi 2007:216-217; de-Cardi *et al.* 1976; al-Jahwari & Kennet 2010; Orchard 2000).[121] Such generalizing of rectilinear Umm an-Nar architecture into an amalgamous category of

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[120] Rectilinear buildings tend to be constructed of locally available materials, including limestone slabs (e.g., Umm an-Nar Island), unworked wadi cobbles (e.g., Maysar), and mudbrick (e.g., Ra's al-Jinz). The absence of small-scale architecture at sites along the Gulf and Batinah coasts and on the Horn of Oman may be due to the choice of construction medium, such as palm fronds or reeds.

[121] The early identification of Bat as a substantial Umm an-Nar settlement are notable examples of this eagerness to attribute a domestic function to rectilinear architecture (de Cardi *et al.* 1976:146, 172-173; Frifelt 1975:69; 1976).

domestic architecture oversimplifies interpretations of the period's social complexity and fails to take advantage of a potentially rich and multifaceted source of archaeological data. I suggest that, until a house tradition is clearly defined for a region, it is more useful to recognize a domestic or household function for a building or context than to prematurely ascribe a 'house' title.

Due to the compositional diversity discussed here and in the descriptions below (**Section 3.3**), characterizations of sites and buildings as Umm an-Nar settlements and houses have so far taken place on a site-by-site basis. Until more is known of the Umm an-Nar lifestyles and occupational patterns, this individualist approach will undoubtedly and necessarily continue to be the norm. Yet, as is detailed below, the state of knowledge in the field of Umm an-Nar settlement archaeology has now progressed well beyond the confines of coastal sites such as Ra's al-Jinz and Umm an-Nar Island. Future research must now integrate a broader body of occupational data into reconstructions of Umm an-Nar society and work towards a more balanced representation of settlements from the various regions of the Oman Peninsula.

3.3 State of the Field

As noted above (see **Section 3.2**), Early Bronze Age sites are found in three broad environmental and geographic regions of the Oman Peninsula: (1) the Batinah and Ja'alan coasts, (2) the Gulf Coast and Horn of Oman, and (3) the Omani interior. With this section, I review the sites interpreted as Umm an-Nar settlements and buildings identified as Umm an-Nar houses as presented in the available literature (see Fig. 3.1).

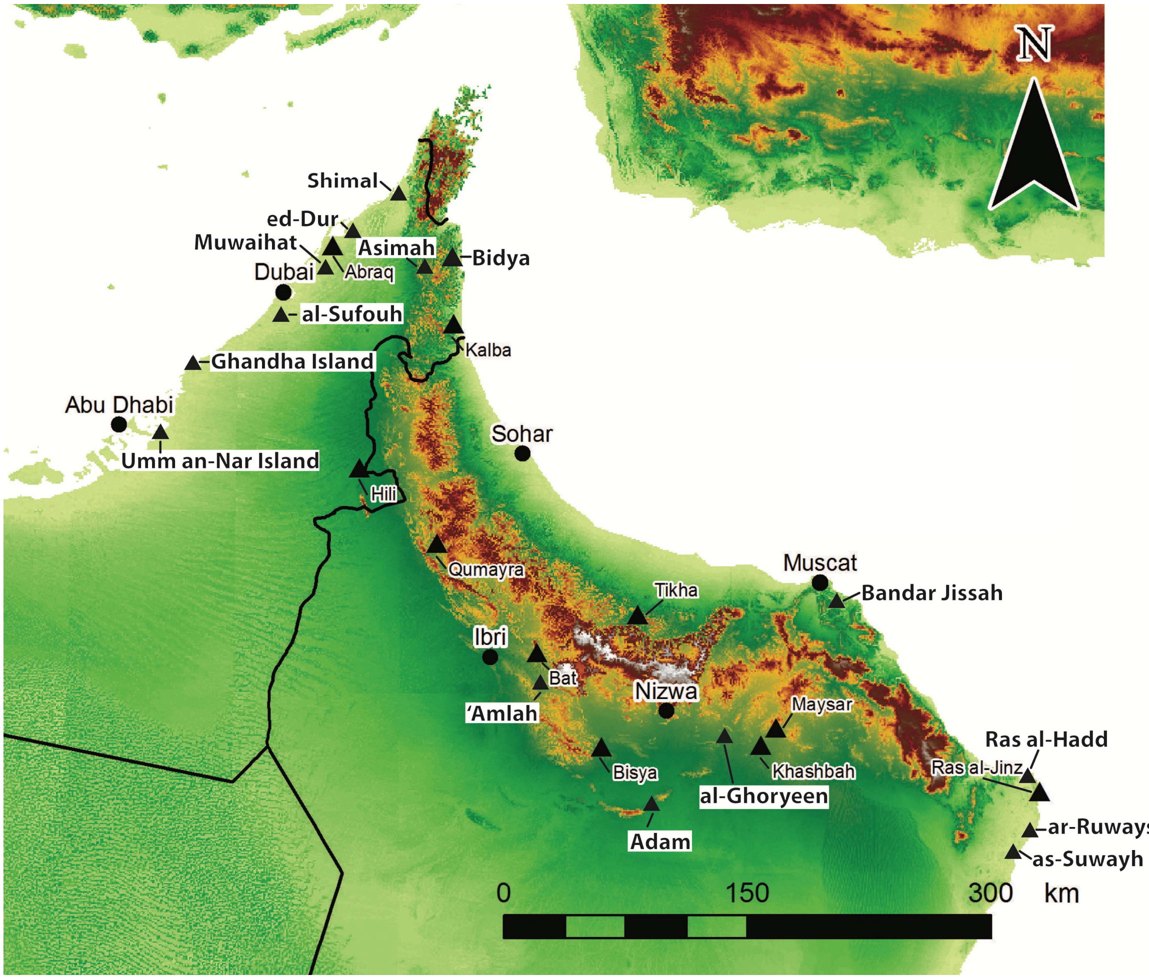

Fig. 3.1: Map of Umm an-Nar settlement sites. After Thornton & Cable 2016:5 Fig. 1.5.

The discussion is organized according to region and special focus is given to excavated sites. In my summaries, I defer to the terminology and interpretations presented by scholars who are far more familiar with the sites and their contents than myself. Throughout the chapters that follow in this dissertation, the sites reviewed below and the conclusions drawn from them will be referred to as comparative examples to contexts found at Bat.

3.3.1 Ja'alan and Batinah Coasts

The Ja'alan Coast is located at the easternmost corner of the Oman Peninsula, where it borders the Arabian Sea and is geographically closest to the Indus. The region is characterized by beaches and coastal lagoons that are separated from inland regions by steep limestone cliffs. While rich in maritime resources, the arid coastal climate and scarcity of fresh water sources present challenges to agriculture (Cleuziou & Tosi 2000). Archaeological research in the Ja'alan has been dominated by the Joint Hadd Project, which has carried out extensive survey, excavation, and ethnographic work in the region since 1985 (cf. Cleuziou & Tosi 1989; 2000; Lancaster & Lancaster 1991; 1996; 2002; Monchablon *et al.* 2003). The project has identified a rich archaeological landscape of sites stretching along the coastline.

The Batinah Coast, in contrast, is located along the long northeastern edge of the peninsula where it borders the Gulf of Oman. This region is characterized by a broad coastal plain that stretches between the Gulf of Oman and the edge of the Hajar Mountains. In recently history, the Batinah has become a rich agricultural landscape (Magee 2014:23-24). While far less archaeological research has been published for for this region of the Oman Peninsula than elsewhere, ongoing projects promise to in this gap in the map of Umm an-Nar sites (Düring *forthcoming*; Düring & Olijdam 2015; Saunders 2016).

3.3.1a Ra's al-Jinz

Foremost among the Umm an-Nar sites identified by the Joint Hadd Project is the coastal site of R'as al-Jinz, located at the easternmost point of the Arabian Peninsula (cf.

Azzarà 2009; 2015; Cleuziou & Tosi 2000). The site is situated at a break in the long coastal cliffs that line the Arabian headland, where the ancient population(s) took advantage of the prime fishing grounds created by a long beach and system of freshwater lagoons. R'as al-Jinz is composed of a substantial collection of multi-period settlement, production, and mortuary sites that stretch along roughly 3 km of coastline and into the inland highlands. This area has been continuously occupied since the 6th millennium BCE, with concentrations of activity shifting over time in relation to environmental conditions and resource availability (cf. Cleuziou & Tosi 2000:19).

The site's primary Umm an-Nar Period settlement, Ra's al-Jinz 2 or RJ-2, is located at roughly the center of the site and provides the most complete set of architectural and occupational settlement remains known from the Umm an-Nar Period (see Fig. 3.2). The periodization of RJ-2 is defined by major construction events, meaning that the site's phases do not necessarily link to regional chronological periods. The Umm an-Nar Period occupation can roughly be equated with the settlement's Periods II-IV.[122]

The Umm an-Nar settlement at RJ-2 is represent by two large compounds (the Northern and Southern Compounds) that each feature multiple construction phases (cf. Cleuziou & Tosi 2000; Azzarà 2009:9-12).[123] Throughout both compounds, the walls are constructed of mudbricks (ca. 52x38x10 cm to 36x32x8 cm) interspersed with up to 20

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[122] An earlier and stratigraphically earlier occupation dating to the late fourth millennium BCE is considered Period I (cf. Cleuziou & Tosi 2000; 2007:92). The site's primary occupation occurred in Period III, which is radiocarbon dated to ca. 2300-2100 BCE (Cleuziou 2002:215).

[123] The primary use phase of Southern Compound is slightly earlier than that of the Northern. The Southern Compound was occupied during Phases II and III, while the Northern Compound was in use during Phases III and IV (cf. Cleuziou & Tosi 2000).

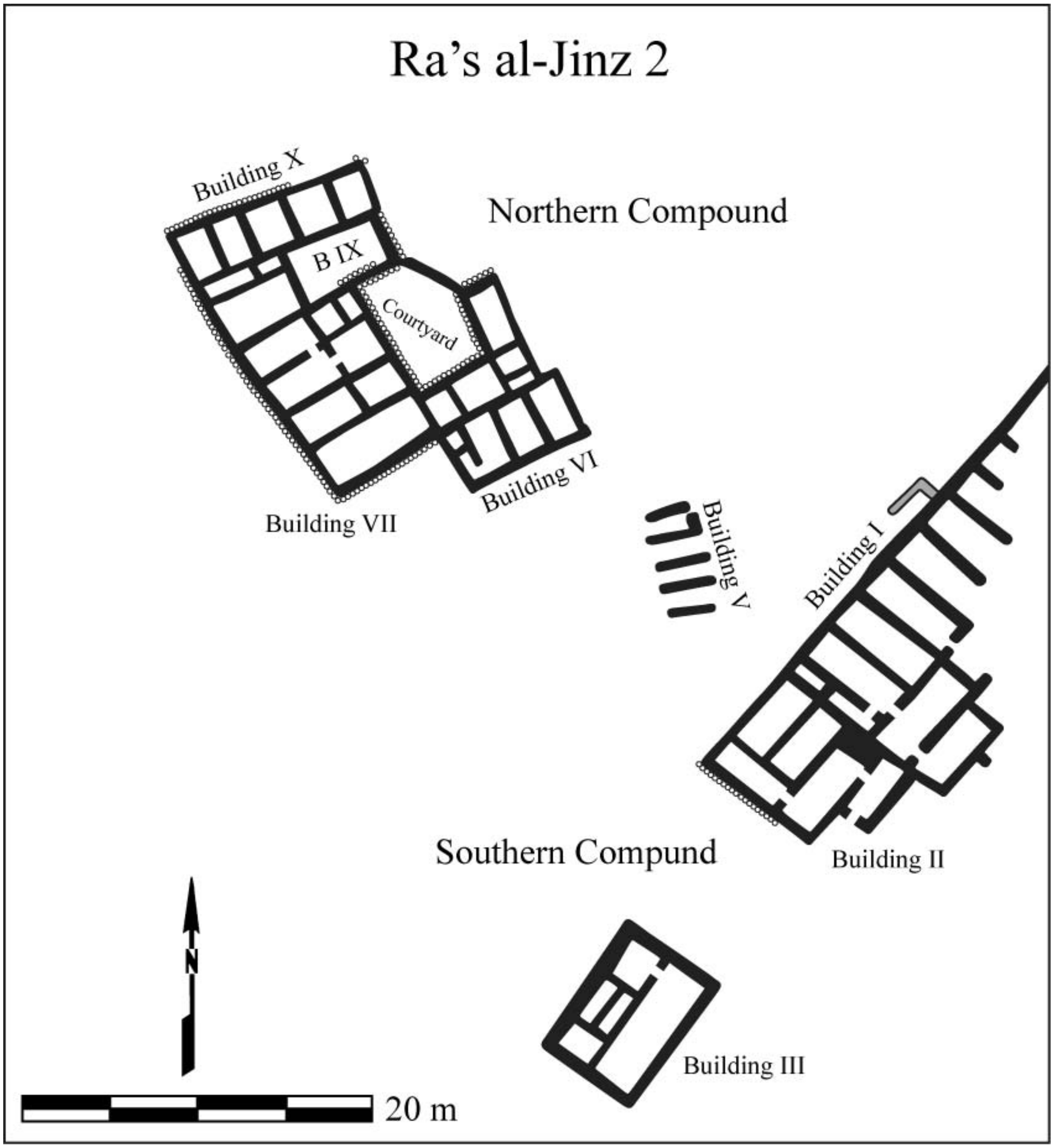

Fig 3.2: Plan of Ra’s al-Jinz 2. After Azzarà 2009:4, Fig.3; Cleuziou & Tosi 2000:32; Fig. 5.

cm of sandy mortar or pisé. The mudbrick walls rest directly on the ground surface without stone foundations. The locations of doorways leading into buildings and between rooms are particularly clear through the site’s distinctive 40-50 cm tall threshold stones (Cleuziou & Tosi 2000:29-39). Within the buildings, secondary reconstruction or renovation phases are demonstrated by interior modifications (i.e. filled doorways or subdivided rooms) and stone supports added along exterior wall faces.

The earlier of the two agglomerative structures at RJ-2, the Southern Compound, is composed of Buildings I, II, III, and V. Of this collection, Buildings I and II abut and eventually engage with one another, while Building III is an independent structure located some 10 m to the southwest. All three of these mudbrick buildings demonstrate a high level of structural consistency, both in terms of construction methods and materials and of room size and shape. While varying somewhat in length, the rectangular rooms consistently measure between 2.1 and 2.2 m in width.[124] This suggests that the buildings were planned prior to construction and represent a standardized organization of space. Excavators interpret each building as being composed of several large living rooms and smaller storage rooms (Cleuziou & Tosi 2000:29-34; 2007:217-218). Evidence for storage and craft production, in the form of large jars and production debris,[125] were found in various rooms of each building.[126] Also of note are five infant burials discovered below the floors of Buildings I and II – the only examples of their kind so far known on the Oman Peninsula.[127] Based on their size, contents, and independent storage facilities, Cleuziou and Tosi "conclude that these basic units housed a nuclear family, and

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[124] Cleuziou and Tosi suggest specialized masons may have been responsible for the construction of Umm an-Nar mudbrick buildings (2000:38).

[125] Evidence for craft production include copper slag, crucible fragments, flit knapping debris, partially finished shell rings or beads, and a store of bitumen that may have been used to water-seal boat hulls (cf. Cleuziou & Tosi 1994; 2000:29-34).

[126] However, no built-in installations (i.e. kilns, ovens, storage bins, etc.) suggesting planned specialized room or building functions were identified.

[127] The infants were interred either within ceramic jars or in shallow pits and only one was found with any burial goods – a necklace of of fruit and chlorite beads (Cleuziou & Tosi 2000:33).

the fact that they were clustered together in a single construction suggests that these nuclear families were part of larger kinship group that had built the house compound" (2007:218).

The unusual Building V, located northwest of Building I, is composed of five independent parallel walls – each 2.5 m long and spaced 1.5 m apart. Rather than mudbrick, these walls are constructed of irregular stones and mud mortar with a larger stone marking the terminating ends. Two ovens were discovered between the walls along with a cache of flint blades. Cleuziou and Tosi suggest this unusual feature may have been a series of stands for dry-docking boats or a storage structure with a superstructure of perishable materials that have not survived (2000:33-34). After the Southern Compound was abandoned during Period III, the area was characterized by a field of postholes interpreted as representing round wooden or palm frond architecture, but the date and function of these structures remains unclear (cf. Cleuziou & Tosi 1989; 2000).

The Northern Compound of RJ-2 dates to slightly later than the Southern Compound (2300-2100 BCE; Cleuziou & Tosi 2000:28-29) and is interpreted as reflecting the increasing integration of the settlement's population into extended household groups (Azzarà 2009; 2015). In this compound, occupational remains are concentrated in seven agglomerative, mudbrick structures, Buildings VI-XII, built in Periods III and IV. Identification of individual buildings is based on construction phases and discrete units of interconnecting rooms. In Buildings VII and VIII, structures were gradually constructed around a roughly rectangular, central courtyard. In earlier structures, room size and shape show a high internal consistency with room widths remaining at an average of 2.2 m. As the agglomerative process progressed, however, both building and room form become increasingly organic.

The contents of the Northern Compound structures are particularly informative for interpretations of daily life at the site. The central courtyard space is characterized by numerous ovens, ash layers, and rubbish accumulation that are suggestive of communal food preparation. The enclosed courtyard space is also equipped with a drain feature that allowed excess water to be stored in a cistern below Building XII.[128] As in the Southern Compound, almost every northern building included some evidence for small scale storage or craft production. Larger rooms were typically found to contain a hearth, occasionally small crucible fragments or debris from shell bead production, fishing equipment,[129] and what Azzarà describes a "personal items" (e.g., jewelry, tools, decorative items, etc.; 2009:10-11; Cleuziou & Tosi 2000:57), while smaller rooms were used for storage.[130] Building X notably consists of a row of five roughly square rooms, each with a large central fireplace and no connecting doorways linking them. In the absence of any evidence for craft production or other specialized purpose, it is possible these rooms served as private living spaces (Cleusiou & Tosi 2000:36).[131] Cleuziou and Tosi suggested that the suites of the Northern Compound may represent "a good example

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[128] This feature is paralleled to the Late Umm an-Nar drain and cistern found in the courtyard of House 4 at Maysar 1, discussed above (Weisgerber 1981:192).

[129] Finds were recovered throughout the compound, including copper hooks, stone sinkers for fishing nets, and ample fish bones (cf. Cleuziou & Tosi 1994; 2000; 2007).

[130] Stored materials include fishing equipment, storage jars, and bitumen slabs thought to have been used for sealing boats (Cleuziou & Tosi 2000:35-36).

[131] In a functional study of the hearths in Building 10, Azzarà argues that the scale of these fireplaces indicates that the rooms may have rather been used as workshop spaces, although she does not reject the possibility that they also served a domestic function (2005:80-83).

of what could have been the dwelling space for a family or social cell of the late 3rd millennium BC" (2000:37), while Azzarà argues that the increasingly agglomerative architecture at RJ-2 "likely originates from the regrouping of nuclear families into more complex aggregations, probably based (one supposes) on kinship (2009:12). The Northern Compound was abandoned at the end of the site's Period IV, corresponding roughly to the end of the Umm an-Nar Period, and occupation shifted to the nearby sites of RJ-1 and RJ-21.

The Umm an-Nar contexts at R'as al-Jinz are extremely important for our understanding of region's Early Bronze Age subsistence strategies and connections with the greater Near East. Archaeozoological evidence and results of micromorphological analyses of contexts from within the buildings indicate that the site was occupied on a seasonal basis (Cleuziou & Tosi 2000:31; 2007:231-4). This calendar would correspond with the post-monsoon winter fishing months as well as the summer highland grazing season – supporting a dual maritime and pastoral lifestyle. RJ-2 also provides substantial evidence for Umm an-Nar interaction with the Arabian Gulf trade network. Objects originating in the Indus – including inscribed sherds, an ivory comb, and several Harappan stamp seals – were found in contexts throughout the settlement (Cleuziou 1992; 2003; Cleuziou & Tosi 2000). Additionally, stores of bitumen slabs bearing impressions of reeds, ropes, and barnacles are suggestive of Mesopotamian-style boats (Cleuziou & Tosi 1994).[132]

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[132] Chemical analyses on the R'as al-Jinz bitumen slabs matches sources from northern Iraq, reinforcing the textual references to trade interactions between Mesopotamia and *Magan* on the Oman Peninsula (Cleuziou & Tosi 1994; Gelb & Kienast 1990; Glassner 1996; Potts 1993).

The settlement at R'as al-Jinz 2 provides a vivid picture of a seasonal, maritime community well-connected to the broader ancient world. However, within the spectrum of Umm an-Nar settlements, R'as al-Jinz occupies a unique geographic and environmental position. The subsistence strategies made possible by its situation on the southern coast created a lifestyle that was undoubtedly quite different from those of the Omani interior, Gulf Coast, and Horn of Oman. Similarities in material culture and movement of trade goods do attest to the existence of a shared Umm an-Nar cultural identity between regions of the Oman Peninsula. Nevertheless, differences in Umm an-Nar lifestyle represented at Ra's al-Jinz to those from settlements elsewhere on the Peninsula must be considered before direct parallels are drawn.

3.3.1b Ra's al-Hadd

A short 11 km north of Ra's al-Jinz is the site of Ra's al-Hadd, also excavated by the Joint Hadd Project (see Fig. 3.3).[133] Similar to Ra's al-Jinz, Ra's al-Hadd consists of a collection of sites from various periods clustered around a fresh water lagoon (Khor al-Hajar) and natural harbor. Third millennium BC settlements are so far documented at two locations within the site: HD-1 (Cleuziou 2003:138; Reade & Méry 1988) and the more extensively excavated HD-6 (cf. Azzarà 2009; 2013; 2015; Cartwright & Glover 2002; Cattani & Cavulli 2004; Cleuziou & Tosi 2000).[134] While the area around Ra's al-

[133] Excavations have also been carried out at HD-1 by a team from the British Museum, led by Julian Reade, that was affiliated with the Joint Hadd Project. HD-1 can also be roughly dated to the second half of the third millennium. These excavations revealed clusters of post holes, interpreted as representing date palm structures, hearths, and substantial quantities of ceramics imported from the Indus (Cleuziou 2003:138; see also Méry 2000:236, Fig. 144).

[134] Further settlement from the second half of the third millennium BC may also exist at HD-5, however this has so far only received a brief mention in the published literature (cf. Cleuziou & Tosi 2007:230).

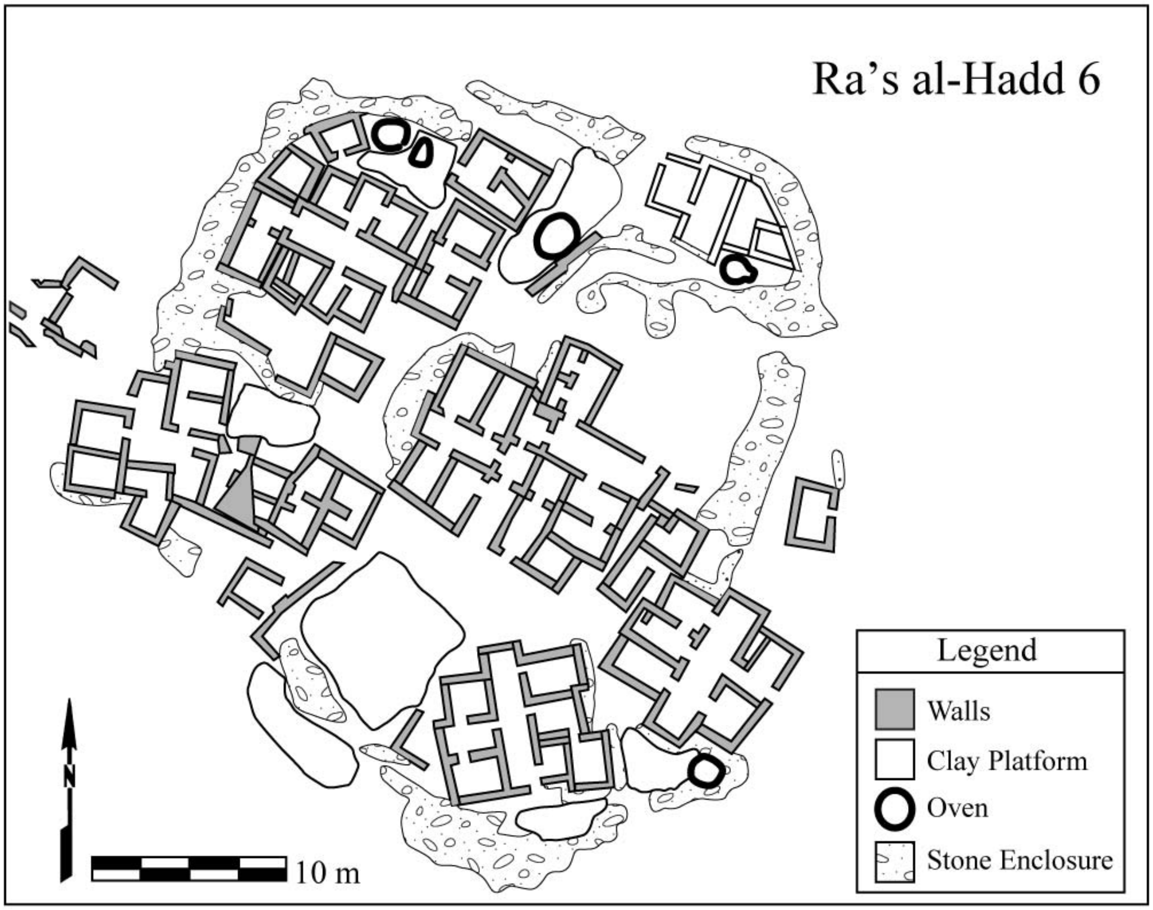

Fig 3.3: Plan of Ra's al-Hadd. After Azzarà 2009:3, Fig. 2.

Hadd is rich in maritime resources, it is very limited in nearby agricultural or pastoral land that might supplement the community's summer subsistence (Cleuziou 2003:138).[135] Thus, the occupants of Ra's al-Hadd are believed to have followed a seasonal migration pattern comparable to that proposed for Ra's al-Jinz (Cleuziou & Tosi 2000).

The settlement at Ra's al-Hadd 6, or HD-6, has been excavated by the Joint Hadd Project from 1996 to present and is an extremely important site for demonstrating the transition to a settled lifestyle with interaction with the international marine trade network that existed in Arabian Gulf during the Early Bronze Age (Cattani & Cavulli 2004;

[135] The closest agricultural lands are located at a distance of 60 to 80 km, in the large oases of the Wadi al-Batha to the south (Cleuziou 2003:138).

Cleuziou 2003; Cleuziou & Tosi 2000). Although the majority of the site's occupation dates to the Hafit Period (3100-2700 BCE), the site's latest phases appear to be partially contemporary with the Early Umm an-Nar at Bat (ca. 2800-2500 BCE). The site consists of some 14 rectilinear structures built of mudbrick clustered within a stone enclosure wall (0.5 ha). Structures follow a somewhat irregular organization and are composed of two or more interlocking, rectangular rooms of varying sizes. Buildings typically contained storage spaces, evidence of domestic activity (e.g., food preparation), and craft production (especially shell bead manufacture; Azzarà 2013; Hilbert & Azzarà 2012). A recent analysis of the settlement architecture by Valentina Azzarà (2009; 2015) interprets these structures as houses for nuclear families.

Less well-known is Ra's al-Hadd 1, or HD-1, which is roughly dated to 2500 BCE (Cleuziou 2003:138; Reade & Méry 1988). This site is located on a sandbar that defines the Khor al-Hajar lagoon and was briefly surveyed by a team from the British Museum, led by Julian Reade, on behalf of the Joint Hadd Project. Test trenches excavated by Reade revealed clusters of post holes, interpreted as representing reed or palm frond structures, several hearths, and a substantial quantity of imported Indus pottery (Cleuziou 2003:138; Méry 2007:199). While limited in scope. Reade's excavations confirmed that Ra's al-Hadd continued to be occupied throughout the third millennium BCE.

3.3.1c Other Joint Hadd Sites

Research by the Joint Hadd Project stretches along some 3000 km of coastline at the southeastern edge of the Oman Peninsula (Cleuziou & Tosi 2000). While few have been excavated, a number of other potential Umm an-Nar coastal settlements have been identified by the project. These include Ra's ar-Ruwais (RW-3), Ra's al-Khabbah (KHB-1), al-Suwayh (SWY-1, -2, and esp. -3), and al-Aseelah (ASL-1) in the area to the south of Ra's al-Jinz and al-Shiya to the west of Ra's al-Hadd (cf. Cleuziou 2003; Giraud 2009). Of these, al-Suwayh 3 (SWY-3)[136] is known in the most detail as a result of limited excavations carried out by Sophie Méry and Philippe Marquis (1998; 1999; see also Charpentier *et al*. 1998; 2003). Over the course of their research, Méry and Marquis identified one clear rectangular structure (Building 1, measuring 5.1x 5 m) constructed of unworked local sandstones.[137] Although no superstructure was identified atop the stone wall foundations, fragments of mudbrick found in the excavated fill suggest the structure's original form. The building was composed of two parallel, equally sized rooms separated by an interior dividing wall, but contained little material culture. Outside of the building, in contrast, a small collection of grinding stones and copper fish hooks were found near an exterior hearth. These contexts may suggest a domestic function for the building and its associated outdoor activity area (Méry & Marquis 1998:223-226). The remains of fish and shellfish were also recovered from within and near the building, which suggests a similar marine-based subsistence strategy to those known from Ra's al-Hadd and Ra's al-Jinz. Additionally, quantities of Umm an-Nar pottery were recovered from contexts throughout excavations, but no imported Indus ceramics comparable to the large collections from Ra's al-Jinz (Méry & Marquis

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[136] Al-Suwayh 3 is located 70 km south of Ra's al-Hadd and covers an area of over 1 ha (Méry & Marquis 1998).

[137] Wall foundations were composed of a single row of sandstone blocks, as opposed to the double row of dove-tailed blocks found at contemporary sites in the Omani interior (cf. Méry & Marquis 1998:217-218, Figs. 2 & 3).

1998:223-226). This smaller site thus appears not to have been directly involved with the international Arabian Gulf trade network.

Possible insight into the agricultural component of the possible seasonal subsistence strategy practiced by the Umm an-Nar populations of the Ja'alan Coast comes from the small oasis site of al-Ayn. This site is located 30 km to the southwest of Ra's al-Jinz, near the Jebel Khamis, and was explored by the Joint Hadd Project in 2004 (Blin 2007). A survey of the site documented 12-15 rectilinear structures. Excavations in two of these (ALA-1 and ALA-2) revealed the remains of stone architecture, the larger of which (ALA-2) is interpreted as an Umm an-Nar house. This building measures 12x12 m and was constructed of large wadi cobbles (both worked and unworked) that formed 0.70 m wide wall foundations.[138] Several hearths were found both within and just outside of the building, along with Umm an-Nar pottery and a collection of shell beads that attests to contact with the coast. Charred date stones and mammal bones indicate that in the Umm an-Nar Period the area around the site was already a date palm oasis where agriculture and animal husbandry were probably carried out (Blin 2007:250). It is possible that al-Ayn and other similar Umm an-Nar oasis communities supplemented the subsistence of settlements along the Ja'alan Coast, as suggested by Cleuziou and Tosi (2000; 2007).

3.3.1d Batinah Coast Sites

Far less is known regarding the Umm an-Nar use and occupation of the Batinah Coast than of the Ja'alan. Perhaps the best source of archaeological data for this region is

[138] Excavators suggest that the building likely had a mudbrick superstructure (Blin 2007:249)

found in the results of a wide-ranging, multi-period survey that was carried out on the Sohar Plain by Paolo Costa and Tony Wilkinson (1987). Ongoing survey projects in this region and elsewhere on the Batinah promise to substantially improve scholarly understanding of its Bronze Age history (Düring *forthcoming*; Saunders 2016).

3.3.2 Gulf Coast and Horn of Oman

The northwestern Gulf Coast of the Oman Peninsula is composed of sandy beaches with fertile fishing grounds and nearby agricultural and forest lands (Potts 2001:28-34). This environmental diversity supported a network of Umm an-Nar settlements that stretch along the coastline and appear to have been occupied year round (Gregoricka 2011). Excavations have been carried out at a number of these sites, the results of which demonstrate the range of scales and compositions to be found in these northwestern Umm an-Nar settlements. Further inland, the terrain of the Horn of Oman is dominated by the northern extent of the Hajar Mountains and a narrow, northern stretch of the Batinah coast (Potts 2001:28-34). Sites in this region are strategically positioned to take advantage of both the coastal and mountain valley resources.

3.3.2a Umm an-Nar Island

The Bronze Age remains on Umm an-Nar, a small (3x1 km) island in the Abu Dhabi archipelago off the west coast of the Oman Peninsula, were first surveyed in 1959 by a Danish team led by Karen Frifelt. The site was the first of its kind to be studied and eventually became the namesake for the broad cultural horizon found throughout the Oman Peninsula. Frifelt carried out six seasons of excavation between 1959 and 1965, three dedicated to investigating the site's mortuary remains and three focusing on settlement contexts. The results of is research are published in two comprehensive volumes (cf. Frifelt 1992; 1995; see also Frifelt 1975). As the earliest defining remains of their type, the tombs and settlement contexts at Umm an-Nar Island are fundamental to the archaeological expectations for other sites of the period.

The site of Umm an-Nar was located on the eastern half of the island.[139] It consisted of a settlement (ca. 300x200 m) situated between the beach and a seasonal stream, and a field of over 50 tombs located on a neighboring low plateau. The settlement area had a maximum of 2.25 m accumulated sediment, forming a low mound. A strip test trench excavated though the center of the mound revealed three occupational phases, all within the Umm an-Nar Period[140] (Frifelt 1995:237, Plan 3; see Table 3.2 below). Three units of horizontal excavation (trenches 1013, 1014, and 1019) dispersed across the settlement uncovered rectilinear architecture of various scales, all constructed in a similar style of two rows of interlocking local limestone blocks and mud mortar. While no evidence of a superstructure has been recovered, the excavated remains likely represent the foundations for mudbrick[141] or date palm architecture (Friflet 1995:12).

The largest of the excavated structures, interpreted by Frifelt as a warehouse (trench 1013), covered an area of at least 16x16 m and was divided into seven regularly

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[139] The location of the ancient settlement has since been developed as an oil refinery and all remains of the Umm an-Nar occupation appear to have been destroyed (Frifelt 1995:116).

[140] While no absolute dates area available for the contexts excavated at Umm an-Nar Island, stylistic comparison with ceramics from Hili 8 and Bat suggest that the island's settlement likely dates to the Middle and Late Umm an-Nar period.

[141] "The roof may have been a wooden frame covered with mats of palm leaf fronds coated with bitumen as waterproofing, and perhaps part of the wall was also of palm leaves lashed together with string of palm fibers like the *barasti* used until recently in the Gulf area. Mudbricks are another possibility though we would have expected clearer traces of them among the rubble. Two fragments from Rooms 3 and 4... may be from mudbricks" (Frifelt 1995:12)

sized (ca. 3x11 m), rectangular rooms (see Fig. 3.4). The building was located at the southern edge of the settlement mound and is presented in the literature as a large-scale storage facility rather than a domestic residence (Frifelt 1995:24). The 90 cm thick stone wall foundations were preserved up to eight courses in height (ca. 1 m) and in some areas had preserved plaster coating their interior faces. Passages of communication between

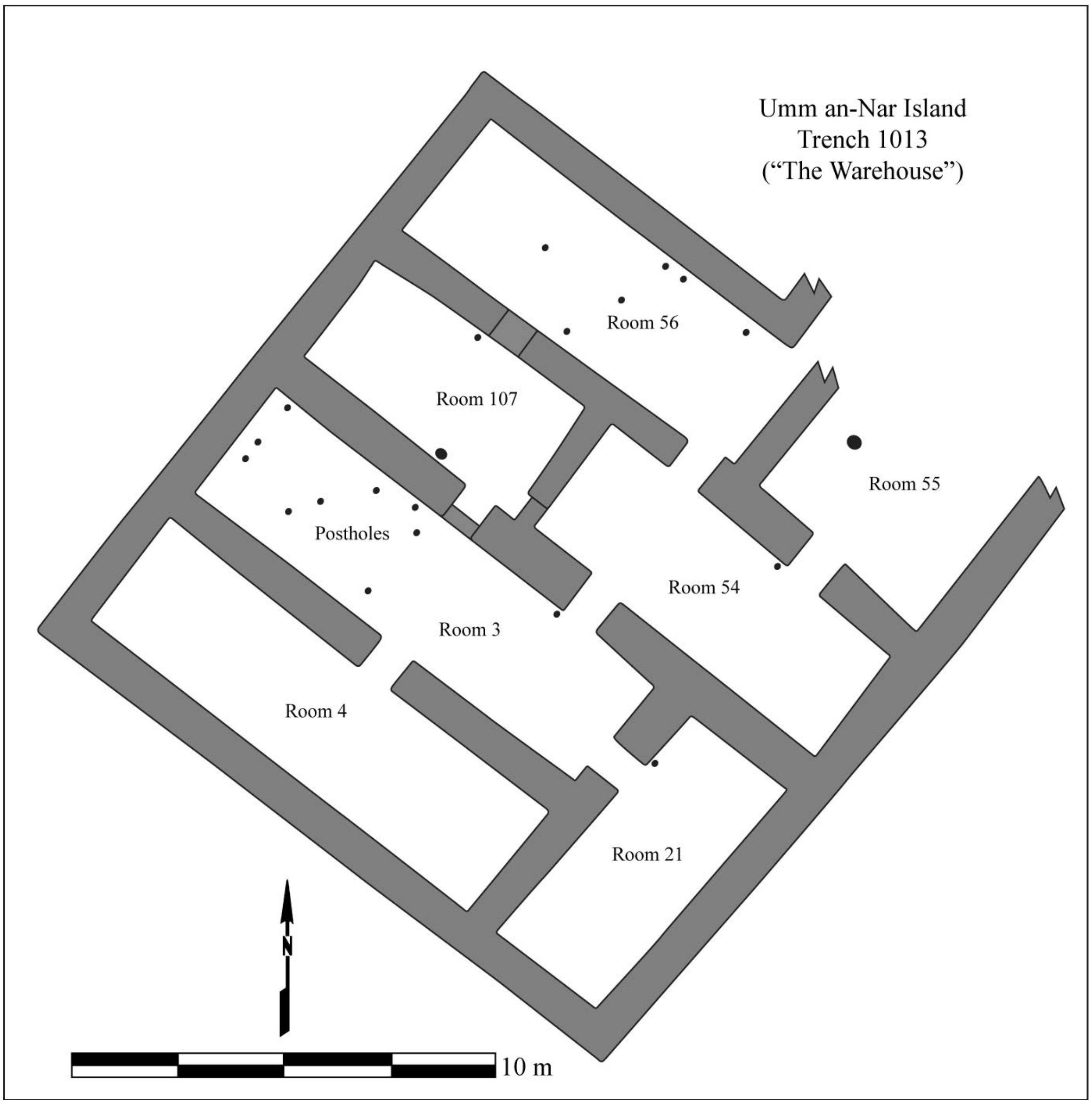

Fig. 3.4: Umm an-Nar Island, Trench 1013 ("Warehouse") plan. After Frifelt 1995: Plan 2.

rooms were clearly marked by doorways, each with its own stone socket. The exact location of the building's entrance is unknown, but it was probably situated along the damaged eastern exterior wall. Only a single construction and use phase were identified in the remains of this building, which Frifelt attributes to ca. 2600-2420 BCE based on local and imported ceramic styles (1995:237-239).[142]

Frifelt's interpretation of the trench 1013 building as a warehouse was largely based on the presence in each room of large storage jars, often coated in bitumen, along with an assortment of copper fragments and stone tools. Of particular note is a collection of Mesopotamian storage jars, one of which is impressed with a Northern Mesopotamian style cylinder seal[143] (Friflet 1995:Fig. 255; cf. Collin 1987:20-23, Fig. 45), that clearly indicates international trade connections. Frifelt suggested that a series of small post holes located along the walls of rooms 3 and 56 represented the remnants of shelving units (1995:12), which reinforced her interpretation of the building as a storage facility. However, a small collection of copper ingots, slag, and a casting mold found in room 4 suggest that part of the building also may have functioned as a workshop (Friflet 1995:15-16).

To the northeast of the so-called warehouse, excavations in trench 1014 uncovered a 13x10 m cluster of smaller scale rectilinear architecture that Frifelt interpreted as a housing complex (see Fig. 3.5). In contrast to the larger building, the

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[142] This date corresponds to the site's Period I and the earlier phase of settlement architecture in trench 1014.

[143] "Shoulder sherd from large vessel of grayish-brown hard-fired ware with the impression of part of a cylinder seal showing a large rosette and a beast of prey, possibly a lion, attacking an animal, possibly a goat" (Frifelt 1995:26).

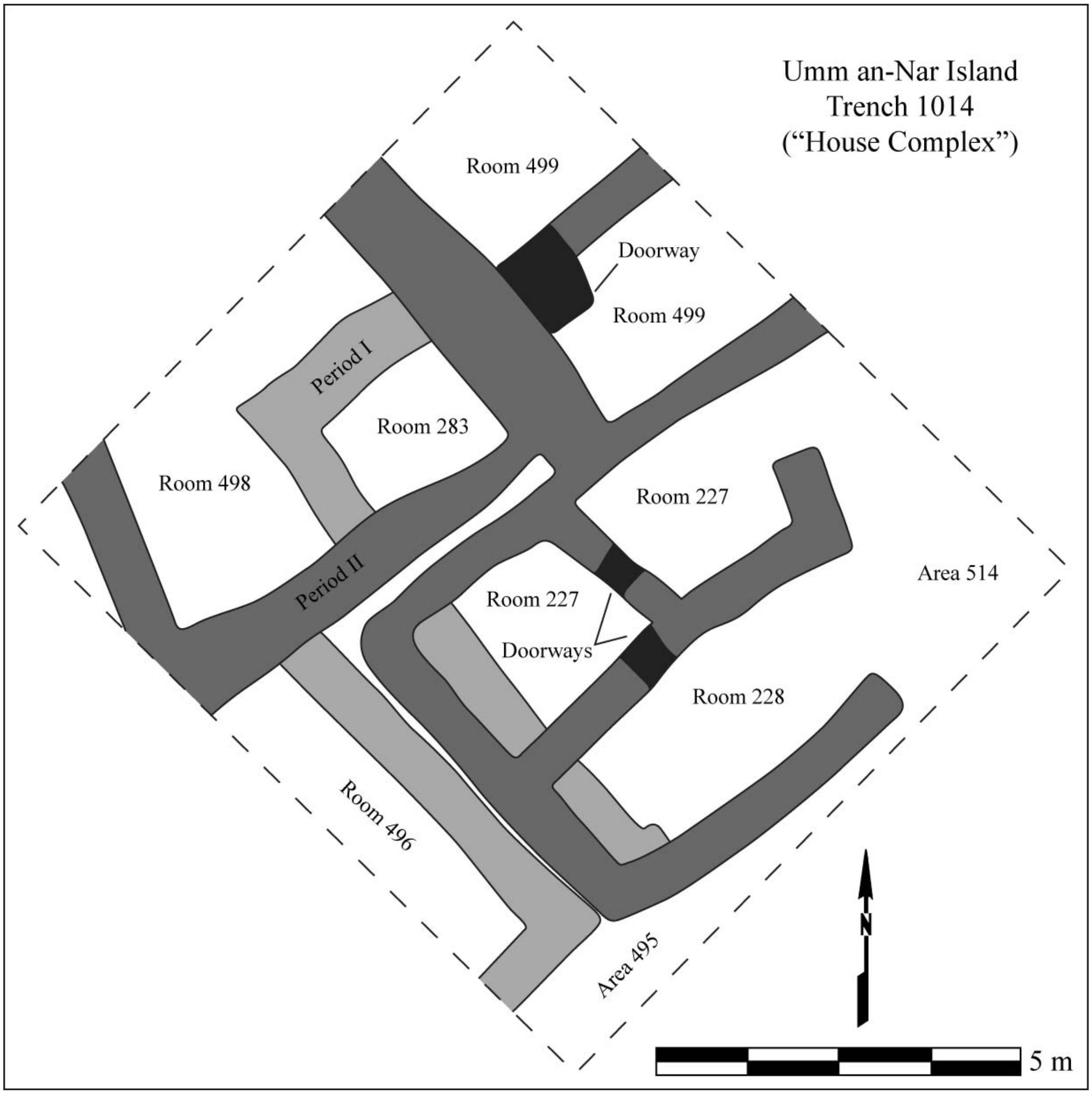

Fig. 3.5: Umm an-Nar Island, Trench 1014 ("House Complex") plan. After Frifelt 1995: Plan 4.

architecture in trench 1014 represented two clear construction phases (Periods I and II), separated by 10-20 cm of sterile sandy sediment. While only partially exposed, these walls appear to have belonged to several abutting buildings. The more structurally coherent Period II, tentatively dated to ca. 2420-2200 BCE,[144] included sections of at

[144] For a chronological and ceramic discussion, see Friflet 1995:237-239.

least two structures. The first was a small, independent building composed of a rectangular main room (228) that was connected to two small (2x2 m) rear rooms (227a & b) by a doorway marked with threshold and pivot stones. This building contained quantities of coarse pottery and evidence of copper working concentrated in both halves of room 227.[145] Immediately northwest of rooms 227/228 were the remains of a more substantial structure. A 1 m thick L-shaped wall created the rectangular space 498 to the west and the smaller scale space 499 to the east. Room 499 was divided in two by a slight, east-west wall with a doorway connecting the two spaces. While there was little to suggest a function for this building, a cache of 41 sinker weights was found in the northern half of room 499. This find is consistent with the archaeozoological remains from the site, which indicate the importance of maritime resources (fish, shell fish, and marine mammals) for the community's subsistence (Frifelt 1975:365; Hoch 1995:249-256).

The earlier Period I construction in the trench 1014 complex was only identified in small sections of walling. The architecture of this period was more carefully and regularly built than that of the later Period II, which frequently used stones robbed from graves or earlier walls. Fragments of two neighboring structures were visible in the excavated exposure – one below and just west of the later 227/228 building (room 496) and a second running below the later walls 227, 228, and 498 (room 283). In the currently available publications, it is not always possible to link reported finds from

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[145] A bun-shaped copper ingot, a chisel, three crucible fragments, and an assortment of shaped copper pieces (cf. Frifelt 1995:98).

trench 1014 to a specific period. As descriptions of the earlier Period I are particularly opaque, it is not possible to reliably interpret functions for these buildings.

A third, even earlier (Phase 0) layer of cultural deposits was identified beneath the Period I remains. This layer is characterized by small collections of post holes and pits. Although no Period 0 architecture was found and few artifacts can be securely linked to it, Frifelt tentatively dated the phase to 2720-2600 BCE based on stylistic analysis of the few available ceramics (1995:41, 237-239).

A final test trench (1019) excavated 50 m north of trench 1014 uncovered a fragmentary collection of rectilinear stone walls – possibly representing two buildings. Although excavation was halted before the occupational level could be reached, a number of large storage jars, copper objects, stone tools, and bitumen lumps were recovered from the area (cf. Frifelt 1995:116-117). The nature of the assemblage has more in common with that of the large building in trench 1013 than with the materials recovered from the small architecture in trench 1014.

3.3.2b Tell Abraq

Also located near the coast of the Arabian Gulf in the United Arab Emirates, in the Emirate of Umm al-Qaiwain, is the mounded site of Tell Abraq. This site stands out from others on the Oman Peninsula because of its stratified contexts, which Dan Potts compares to the tells found elsewhere in the Near East (2000:37). Tell Abraq's stratified sequence stretches from the mid-third millennium to the second century BCE. As such, Abraq is particularly important for scholarly understanding of ancient Arabian chronology. However, although the site has long been interpreted as an Umm an-Nar settlement, Abraq's published evidence of settlement beyond the tower monument illustrates the challenges faced by archaeologists of the region who are interested in domestic remains.[146] The site was initially excavated over the course of five field seasons between 1989 and 1998 by a team from the University of Copenhagen, led by Potts (cf. Potts 1990b; 1991; 1993a; 2000). As of 2006, work has recommenced under Peter Magee with a joint team from Bryn Mawr College and the University of Tübingen.

The site of Tell Abraq is a roughly rectangular mound, reaching a height of 10 m above the surrounding landscape and covering a surface area of ca. 4 ha. Abraq's strategic position next to a Bronze Age lagoon made it a key location for interaction and trade relations with Dilmun, Mesopotamia, southern Iran, and the Indus, as well as with the rest of the Oman Peninsula. Such an advantageous situation probably accounts for the length and scale of the site's occupation. However, because of its steep, tell-style stratigraphy, it has only been possible to excavate limited exposures for each period. Under Potts, two long, perpendicular step trenches were excavated running up the side of the tell. Excavations were then expanded horizontally in specific parts of the site, particularly targeting a monumental Umm an-Nar tower and the area of a neighboring intact Umm an-Nar tomb[147] (cf. Potts 2000:17; see Fig. 3.6).

The mounded site formation at Tell Abraq is attributed to the presence of a massive Umm an-Nar tower at its center. This tower has a diameter of 40 m – twice the

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[146] Recent discoveries at Tell Abraq promise to fill in some of the gaps in our understanding of the site's Umm an-Nar occupation. However, these results have not yet been released in publication.

[147] The Umm an-Nar tomb is located 10 m west of the tower and was discovered in an almost entirely undisturbed state. The communal tomb was excavated between 1993 and 1998 and is the subject of a number of specialized publications (cf. Baustian 2010; Blau 1996; 1999).

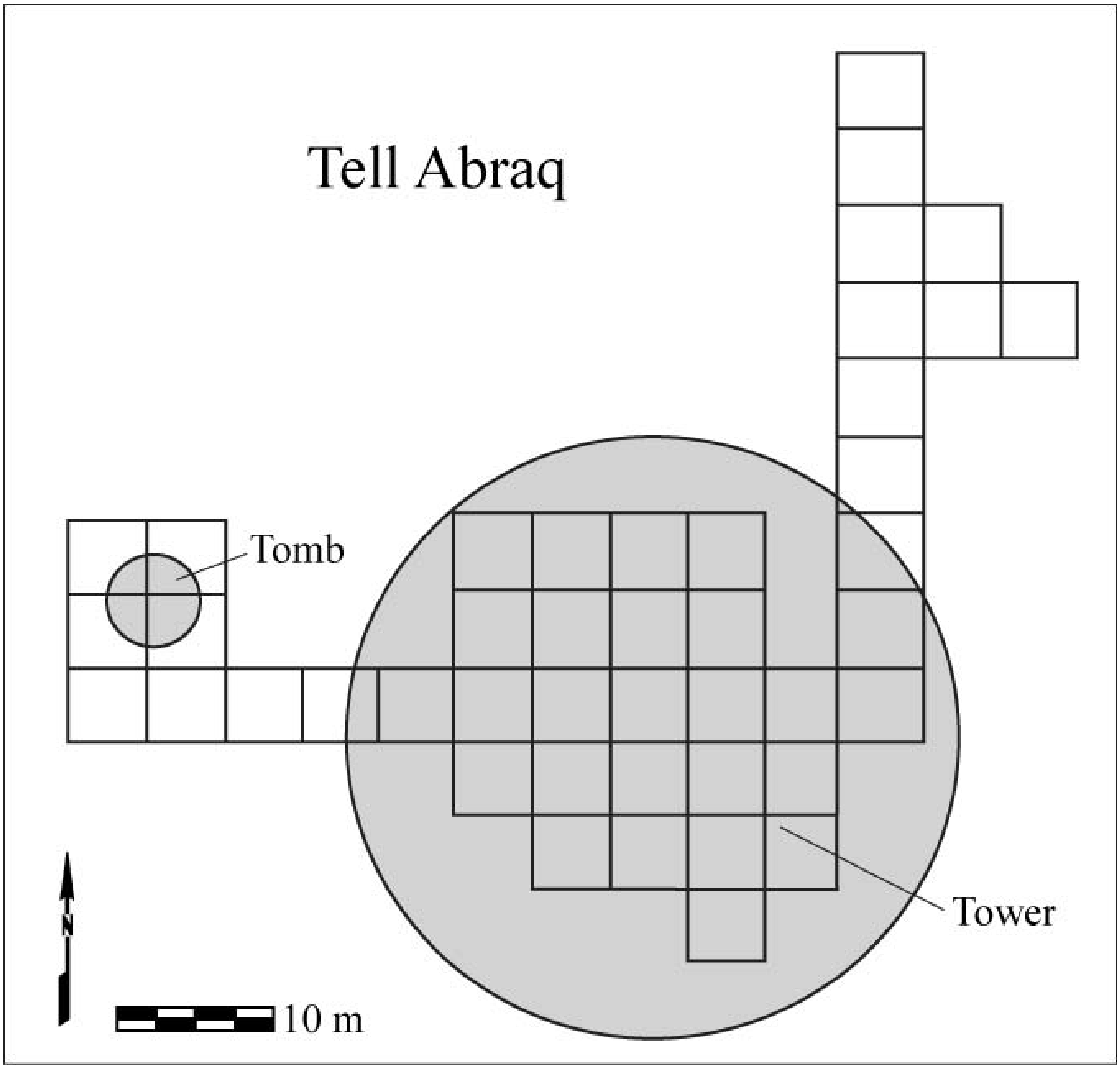

Fig. 3.6: Tell Abraq excavation grid. After Potts 1991: Fig. 8; 2000:17.

size of those found at Bat – and is preserved to a height of at least 8 m, making it the largest known Umm an-Nar tower in Southern Arabia (Potts 1991:22). The building's substantial foundation is constructed of unworked white stone, upon which rests a mudbrick superstructure. Potts suggests that this massive building "must represent the stronghold of one of the 32 'lords' of the cities of Magan mentioned in the famous Old Akkadian account of Maništusu's campaign against the region in the 23rd century BC" (1993a:118).

Excavations within the tower revealed at least 2 m of accumulated deposits amongst a series of mudbrick walls. As in other Umm an-Nar towers, a well shaft runs from the preserved surface of the monument, through its center, to below its foundations. However, in contrast with other towers, which rarely feature any preserved contexts on their surfaces, the platform of the Abraq monument appears to have at least partially served as a stage for domestic activities. The area in the center of the tower was unbuilt and possibly functioned as a courtyard space within what Potts interprets as a fortified structure (1993a:118). Within the courtyard were two ovens, a large hearth,[148] numerous ground stone tools,[149] and a collection of ceramics (Potts 1990b:42; 2000:70). The unusual location for these contexts may be due to their late date – the tower's final Umm an-Nar use phase. It may be that the domestic remains found on Abraq's tower platform represent a transitional phase in the Late Umm an-Nar Period when the monument no longer functioned in its original manner (Potts 1990b; 2000). Since no earlier use contexts have so far been identified within the tower, it is not yet possible to verify if the domestic function of the monument's platform was always a part of its purpose.

Beyond the tower walls, the published accounts of Abraq include only traces of Umm an-Nar occupation. Yet, these traces may offer significant insight into why so little settlement architecture has been found at other sites along the Gulf Coast or on the Horn of Oman. Collections of post holes are interpreted as suggesting that the site's population

[148] Radiocarbon analysis of charred materials from this hearth provide a Late Umm an-Nar date range of 2290-2020 cal. BC for these contexts (Potts 2000:48). Associated with the hearth was a large collection of Late Umm an-Nar painted pottery and two Harrapan stone cubic weights (cf. Potts 1990b:42).

[149] "As the list of small finds from Umm an-Nar pottery-bearing levels in the square attests, the high number of grinding stones and hammerstones found in this area clearly reflects the occupational nature of the debris, whether or not architectural remains were absent" (Potts 1991:30-32)

primarily lived in buildings constructed of palm fronds, such as the modern *barasti* buildings (Potts 2000:23; see also Costa 1985). A deposit of charred wood, reeds, and date stones on the level of the tower foundations has been interpreted as the burned remains of such a building (Potts 1990b:24; 1993a:119). It is probable that such structures existed at other Umm an-Nar settlements in the region but have not preserved. Additionally, recent (2016) discoveries to the south of the tower await publication and promise new insight into the lifestyles and domestic activities of Abraq's Umm an-Nar population.

At the end of the Umm an-Nar Period, the tower fell out of use and a large (16x18), oval mudbrick platform was constructed over its remains by the site's Wadi Sûq inhabitants. The high quality preservation seen in the underlying Umm an-Nar monument is largely due to the protection provided by this later feature. During the Wadi Sûq period, the platform served as an occupational surface at the center of a large settlement. Beyond the platform, further postholes suggest that palm fronds continued to be utilized as a construction material. Potts emphasizes the significance of this phase at Tell Abraq, noting that it stands in contrast to the general idea that the Wadi Sûq Period represents a shift to a primarily nomadic lifestyle (cf. Potts 1993a; 1993b).

3.3.2c Kalba

The site of Kalba, located on the eastern coast of the Horn of Oman in the Emirate of Sharjah, is described as a multi-period Umm an-Nar settlement centered on a tower monument (Eddisford & Phillips 2009). While somewhat similar to Tell Abraq in composition, Kalba does not compare to the larger site in terms of scale. The site is strategically positioned so that its population could take advantage of a number of nearby environmental zones, including the coast, forrest lands, as well as the agricultural land and mineral resources in the Wadi Ham. The site is composed of both mortuary (Kalba 1 & 2) and settlement (Kalba 4) contexts spread across an area of roughly 50 km^2.

The possible Umm an-Nar settlement at Kalba 4 is found in a 2.5 m high, 50 m diameter mound, at the center of which is a sub-circular, monumental mudbrick tower (Eddisford & Phillips 2009:114-115).[150] The tower measures 20x21 m and is preserved to a height of 4 m. However, due to later reuse of the site in the (Middle and Late) Bronze and Iron Ages, no use contexts contemporary with the monument were recovered from within it. Similar later activity also effects the clarity of most areas around the tower. Yet, excavators were able to isolate Umm an-Nar contexts associated with the raised earth platform on which the tower is built and an area of mudbrick pavement that abuts the monument (Eddisford & Phillips 2009:116, Fig 6a & 6b; see Fig. 3.7).[151] A substantial collection of Umm an-Nar ceramics were recovered from these contexts and stylistically date the use phase to roughly 2300-2000 BCE (Eddisford & Phillips 2009:115-120).[152] Imported Iranian and Indus ceramics found in these contexts also suggest that the inhabitants of Kalba 4 participated to some extent in the international

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[150] The Kalba 4 tower is structurally comparable to Hili 8's Building III – a square, mudbrick tower with rounded corners and interior mudbrick cross walls, the spaces between which are packed with mud to create a level tower surface. The structure features a mudbrick platform to the south, similar to Hili 8's Building V, and is encircled with a mudbrick wall (cf. Eddisford & Phillips 2009:121 Fig. 13; see also **Section 3.3.3a** below).

[151] A similar tower foundation mound with associated domestic activity is found at the site of al-Khafajiat Bat (see **Sections 4.3** and **6.3**).

[152] This date range equates with the second half the Middle Umm an-Nar and the Late Umm an-Nar occupations at Bat (Thornton & Cable 2016:3, Table 1.1; see also **Section 4.2**).

Arabian Gulf trade network (Eddisford & Phillips 2009:120).[153] Although they present no domestic contexts, Daniel Eddisford and Carl Phillips interpret the area of the tower foundation mound and its area of mudbrick pavement as a stage for settlement activity (2009:120-121).

3.3.2d Bidya 2

Some 70 km north of Kalba is the of al-Bidya, situated close to the eastern coast in the Emirate of Fujairah. This site features a similar monumental Umm an-Nar tower (Bidya 2)[154] with associated vague indications of surrounding settlement (al-Tikriti 19891). The Bidya tower is constructed of large limestone blocks and follows a sub-circular layout (roughly 26 m in diameter) comparable to the mudbrick towers at Kalba 4 (Eddisford & Phillips 2009) and Hili 8 (Cleuziou 1989a). Limited excavations outside of the tower, carried out in 1988 by al-Tikriti, revealed that the tower is encircled by a ring wall 1.3 m from its exterior face (al-Tikriti 1989:108). Beyond this wall, al-Tikriti identified the remains of fragmentary stone architecture, which he interprets as being associated with the tower monument (1989a:108), and mudbrick paving similar to that found at Kalba (Eddisford & Phillips 2009:106). An unspecified number of fire pits and a dense collection of Umm an-Nar ceramics were found in relation to the mudbrick surface (al-Tikriti 1989:108). While restricted in scope, the remains outside of Bidya 2, along with the similar contexts at Kalba 4, suggest that domestic-type activity may have

[153] Umm an-Nar contexts at Kalba 4 also contained some evidence for copper working and soft stone vessel production. However, Eddisford and Phillips warn that these materials may be intrusions from later contexts, in which metalworking especially was far more prominent than in the Early Bronze Age contexts (2009:120).

[154] Bidya 1 is described as a "long tomb" that can now be dated to the Wadi Sûq Period (al-Tikriti 1989:102).

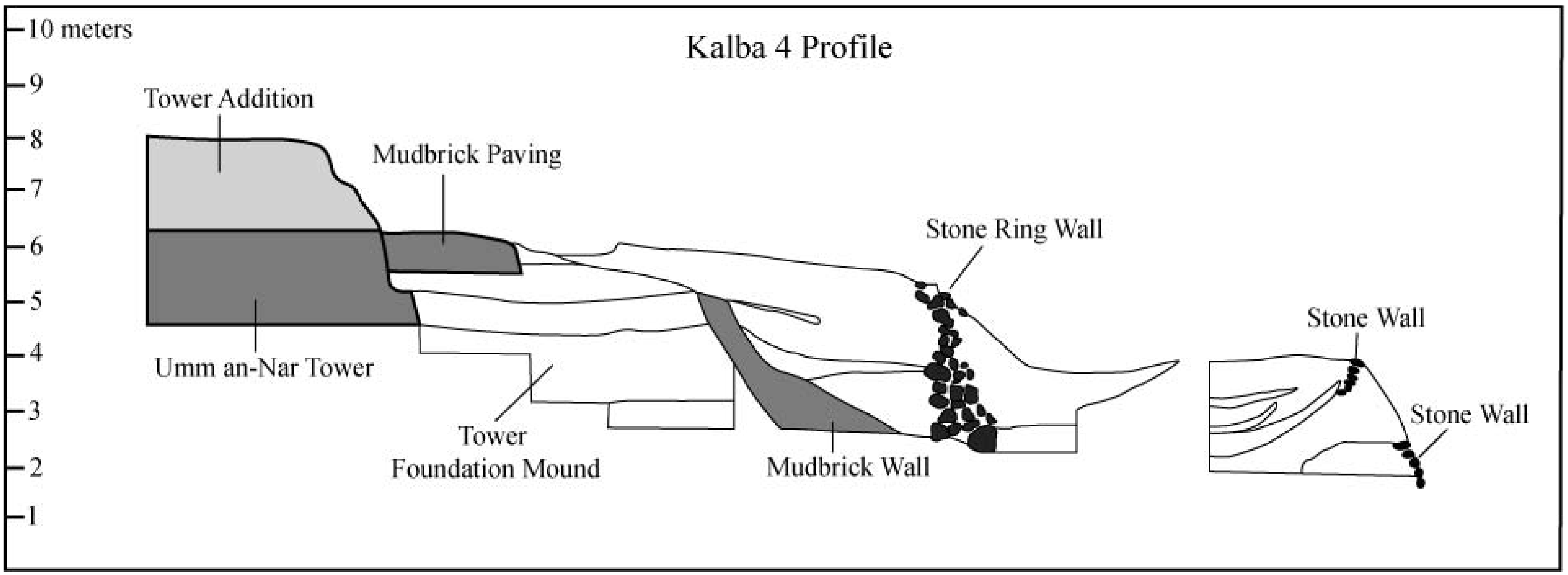

Fig. 3.7: Kalba 4 profile showing tower, tower foundation mound, mudbrick paving, tower ring walls, and Umm an-Nar occupational layers around tower.. After Eddisford & Phillips 2009:116, Fig. 6b.

commonly taken place on paved areas near the Umm an-Nar tower monuments of this region. Yet, further excavation at greater distances from the towers is necessary to confirm the existence of settlement contexts.

3.3.2e Asimah

Inland and to the southwest of Bidya is site of Asimah, situated in the mountains of Ra's al-Khaimah. The site was excavated by Burkhard Vogt in the winter of 1987-1988. It is composed of an Umm an-Nar cemetery and a domestic area (AS North) that Vogt describes as a semi-sedentary encampment (1994:159). The area of domestic activity is clustered in the general vicinity of a stone building (AS-99, measuring 8.9x6.5 m) that is composed of two parallel, rectangular rooms divided by an interior wall and connected with a central doorway. The structure's wall foundations are built of unworked, local quartzite blocks and are preserved up to five courses in height. No trace of a superstructure was found. Structure AS-99's interior featured a gravel floor and a single occupational level with 10 cm of accumulated sediment that contained copper prills and a small number of Late Umm an-Nar sherds. Vogt suggests that the limited contents within the building represents a relatively short period of use (1994:153).

However, contexts below and surrounding structure AS-99 indicate that Asimah was occupied well beyond what is represented in the building. At a level 10 cm beneath structure AS-99, Vogt uncovered an activity surface with two fire pits that clearly predate the building. A short distance away, a second area with two superimposed occupational surfaces was found, each with associated pits, hearths, and evidence of domestic activity. The presence of small, ephemeral (date palm or reed) structures is indicated by small collections of post holes found in both surfaces. Evidence of domestic activity occurred in the form of rubbish pits, hearths, tanur or clay oven fragments, burnt ceramics, grinding stones, and accumulations of animal bones. Such an assemblage strongly suggests that food preparation, consumption, and waste disposal were carried out in this area at a scale beyond a single, nuclear household. These contexts can be dated to the Middle and especially Late Umm an-Nar Periods based on the substantial collection of Umm an-Nar and imported ceramics they contained (Vogt 1994:156). Based on the ephemeral nature of the site's architecture and the limited accumulations of sediment and cultural material, Vogt prefers to interpret the occupation at Asmiah as a temporary, or perhaps seasonal, encampment (1994:159).

3.3.2f Others (Ghandha Island, Abu Dhabi Airport, al-Sufouh, Mowaihat, South ed-Dur, & Shamal)

A number of other small Umm an-Nar Period sites have also been excavated along the Gulf Coast of the Oman Peninsula. These sites (Ghanadha Island, Abu Dhabi Airport, al-Sufouh, Mowaihat, South ed-Dur, and Shamal) are often poorly preserved and have no indication of architecture. Yet, they are interpreted as settlements in the published literature due to the presence of hearths, ceramic scatters, evidence of domestic activity, and occasionally the presence of post holes that suggest date palm or reed architecture. In an influential interpretation, Carl Phillips proposes that sites of this nature may represent the smallest tier in a three tiered Umm an-Nar settlement hierarchy (2007:5-6; see also **Section 5.2**).

The most notable of these possible settlements is the site of Ghanadha Island is located on a small (4x2.5 km) island off the coast of Abu Dhabi, 65 km northeast of Umm an-Nar Island, and was studied by Walid Yasin al-Tikriti between 1982 and 1985 (al-Tikriti 1985). A potential Umm an-Nar settlement was excavated during al-Tikriti's tenure at the site: Ghanadha-1.[155] This possible settlement is a mounded area of 45x100 m, into which al-Tikriti excavated a series of 16 (5x5 m) trenches. He uncovered the remains of multiple fire pits and fire-cracked stones, but little indication of architecture. No postholes were identified and a single, fragmentary wall constructed of unworked limestones was found associated with several fire pits (al-Tikriti 1985:11). A mixture of local Umm an-Nar and imported Mesopotamian ceramics were also recovered from the excavated contexts along with a large collection of copper fishing hooks, copper scraps, a set of over 50 stone net sinkers,[156] and a substantial array of animal bones (al-Tikriti 1985:11-14).[157] The accumulated sediment around this material (up to 30 cm) suggests that the site was occupied for longer than a passing, temporary encampment. However, the extent and duration of that Umm an-Nar occupation is not yet clear.

Various other sites located along the Gulf Coast follow a similar pattern, including: Abu Dhabi Airport, al-Sufouh, Mowaihat, South ed-Dur, Shamal, and Asimah.

[155] A possible second location of Umm an-Nar occupation was identified at Ghanadha-3, where a rectangular stone structure was excavated. Several sherds stylistically identified as Late Umm an-Nar or Early Wadi Sûq were recovered from his building (cf. al-Tikriti 1985: Pl. 6 & 20B). However, a later Iron Age reuse of the building has obscured much of its original contexts and its construction date remains uncertain (al-Tikriti 1985:15-16).

[156] Al-Tikriti reports that the sinkers from Ghandha Island are stylistically identical to those found in Trench 1014 at Umm an-Nar Island (1985:13-14; see also Friflet 1995:72-75).

[157] Animal bones recovered from the site include the remains of dugong, fish, turtles, gazelles, oryx, sheep/goat, whale, and bird (al-Tikriti 1985:14).

In contrast to Ghanadha Island, these sites are typically located in the general vicinity of an Umm an-Nar tomb and are visible on the modern ground surface as a substantial scatter of pottery, shell middens, and/or other domestic debris (cf. al-Tikriti 1985; 1989a; Benton 1996; Boucharlat *et al*. 1988; de Cardi 1997; Phillips 2007; Vogt 1994; 1996; Vogt & Franke-Vogt 1987). However, upon excavation little to no architecture or post holes indicating the past presence of architecture is found.[158] Instead, these sites are characterized by clusters of hearths, rubbish pits, and shell middens. It is possible, as Phillips suggests (2007:5-6), that the lack of architectural remains may be due to deflation and sand erosion. Yet, while the substantial scatter of material culture and evidence of food preparation and waste disposal suggest that these sites were the stages for domestic activity, their interpretation as settlements must for the present remain tentative.

3.3.3 Omani Interior

The final of the three archaeological regions discussed in this chapter is the Omani interior. This region is defined by the rugged al-Hajar Mountains, which parallel the northeastern coast of the Oman Peninsula. The raw stone mountains are a valuable source of mineral resources. The mining and export of copper from the Hajar Mountains by Early Bronze Age populations is especially well documented in both the archaeological record and ancient historical sources (cf. Edens 1992; Hauptmann 1985; Potts 1990a:44; Weeks 1999; 2003; Weisgerber 1980; 1981; 2007b). In this region, sites cluster in wadi valleys and oases, where reliable access to water made agriculture and

[158] A geomagnetic survey was carried out at the supposed settlement area of Mowaihat. However, the results of this survey identified only the location of several hearths (Phillips 2007:2).

sedentary lifestyles possible. While few have yet been excavated, numerous Umm an-Nar settlements have been identified in this region. Such sites are credited with the development of the oasis agricultural strategies that came to characterize the Umm an-Nar lifestyle in the region (cf. Boivin & Fuller 2009; Cleuziou 1992; 1996; 2009; Cleuziou & Tosi 2007; Tengberg 1998; 2012). The examples of Umm an-Nar oasis settlements that have been explored (described below) provide the most direct parallels to Bat in terms of environmental setting, subsistence strategy, lifestyle, and access to resources.

3.3.3a Hili

Most famous of the known Umm an-Nar oasis settlements is the site of Hili, located in the al-Ain oasis in the Emirate of Abu Dhabi, just north of the Emirate-Omani border. The French Archaeological Mission to Abu Dhabi, led by Serge Cleuziou, carried out extensive excavations of the site between 1977 and 1984 (cf. Cleuziou 1979; 1980a; 1980b; 1982; 1989a; 1989b). Hili's documented occupation stretches from the Hafit through the Wadi Sûq periods, but appears to have reached its peak level of activity during the Umm an-Nar. The site features at least five monumental Early Bronze Age towers, occupational/settlement contexts, evidence of agricultural practices, and a substantial Umm an-Nar cemetery.[159] Although not mounded in the traditional sense of a Near Eastern tell, Hili's archaeological landscape includes several mounded areas that

[159] The site features more than 100 Umm an-Nar tombs (cf. Cleuziou & Vogt 1983). Ceramic finds from excavated tombs form the basis of the Hili ceramic chronology – the most complete assemblage available for the Umm an-Nar period (cf. Blackman *et al.* 1989; Cleuziou 1989a; 1989b; Cleuziou & Méry 2002; Cleuziou *et al.* 2011; Méry 1997; 2000)

provide internal stratified contexts that can linked to one another through parallels in material culture.

The results of excavations at Hili are also particularly important for scholarly understanding of the region's Umm an-Nar chronology because of the architectural and ceramic sequence constructed by Cleuziou (cf. 1979; 1989a; 1989b). Through his project's various excavations, Cleuziou was able to identify three major occupational phases roughly corresponding to the cultural periods seen throughout the Oman Peninsula (see Table 3.1 below). In Hili's architectural contexts, these periods are primarily based on major construction phases. Subdivisions within the periods are linked to stratigraphy and stylistic variations in material culture, especially ceramics. Until recently, the Hili sequence was the only ceramic typology available for the Umm an-Nar Period (cf. Thornton & Ghazal 2016; see also **Section 4.2.2**).

Hilli Phases	Bat Period/Date Range	Hili 8 Structures
Period I a-b	Hafit (3100-2900 BCE)	Buildings III, V & VI
Period Ic	Late Hafit (2900-2800 BCE)	Buildings III, V & VI
Period a-c_1	Early Umm an-Nar (2800-2500 BCE)	Buildings II & IV
Period II c_2-e	Middle Umm an-Nar (2500-2200 BCE)	Alterations to Building II
Period II f-g	Late Umm an-Nar (2200-2000 BCE)	Building I & Alterations to Building II
Period III	Early Wadi Sûq (2000-1600 BCE)	Additions to Building I

Table 3.1: Hili Chronology (after Cleuziou 1989a:63-72; 1989b; Thornton & Cable 2016:3, Table 1.1).

Particularly relevant to both the establishment of Hili's chronological sequence and the present survey of Umm an-Nar settlement contexts are the results of excavations at the site of Hili 8. Excavations of this occupational mound focused on the central, multi-phase mudbrick tower monument and its surrounding contexts. The first iteration of the roughly square (16x16 m) tower (Building III) was constructed during the site's Hafit Period occupation (Hili Period I) and was maintained and modified (Building II) throughout the Umm an-Nar Period (Hili Period II).[160] This early tower and its associated contexts are thus significant for demonstrating Hili's transition from Hafit to Umm an-Nar lifestyles (cf. Cleuziou 1996; 2002; Cleuziou & Tosi 2007; Potts 1993a; Tengberg 1998). Since the monument's later phases are poorly preserved, the Period I structure provides a guide for visualizing its later manifestations.

Building III has a solid mudbrick foundation and an outer wall composed of two facing rows of brick surrounding a mud rubble core (see Fig. 3.8). The tower interior is subdivided into 18 rectangular chambers of various size, all oriented around a circular, stone-lined well at its center (Cleuziou 1989a:66-67). Beyond the tower walls, excavations focused on the area to the east of the monument, where two smaller, rectilinear, mudbrick buildings (V and VI) were uncovered in the Period I level – only one of which (Building V) is preserved well enough for comment. Building V, which abuts the tower's northeastern face, is a ca. 5x8 m structure made up of three parallel, rectangular corridors. Its exterior and interior walls are constructed of mudbrick, while the chambers were intentionally filled with mud rubble – the whole forming solid, rectangular surface or platform. The southernmost of these chambers is oriented at a slightly different alignment than the others, which suggests that it may be a later

[160] Charcoal samples taken from hearths within the Period I structure provide a C14 date range of 3000-2800 BCE (Cleuziou 1989a:64).

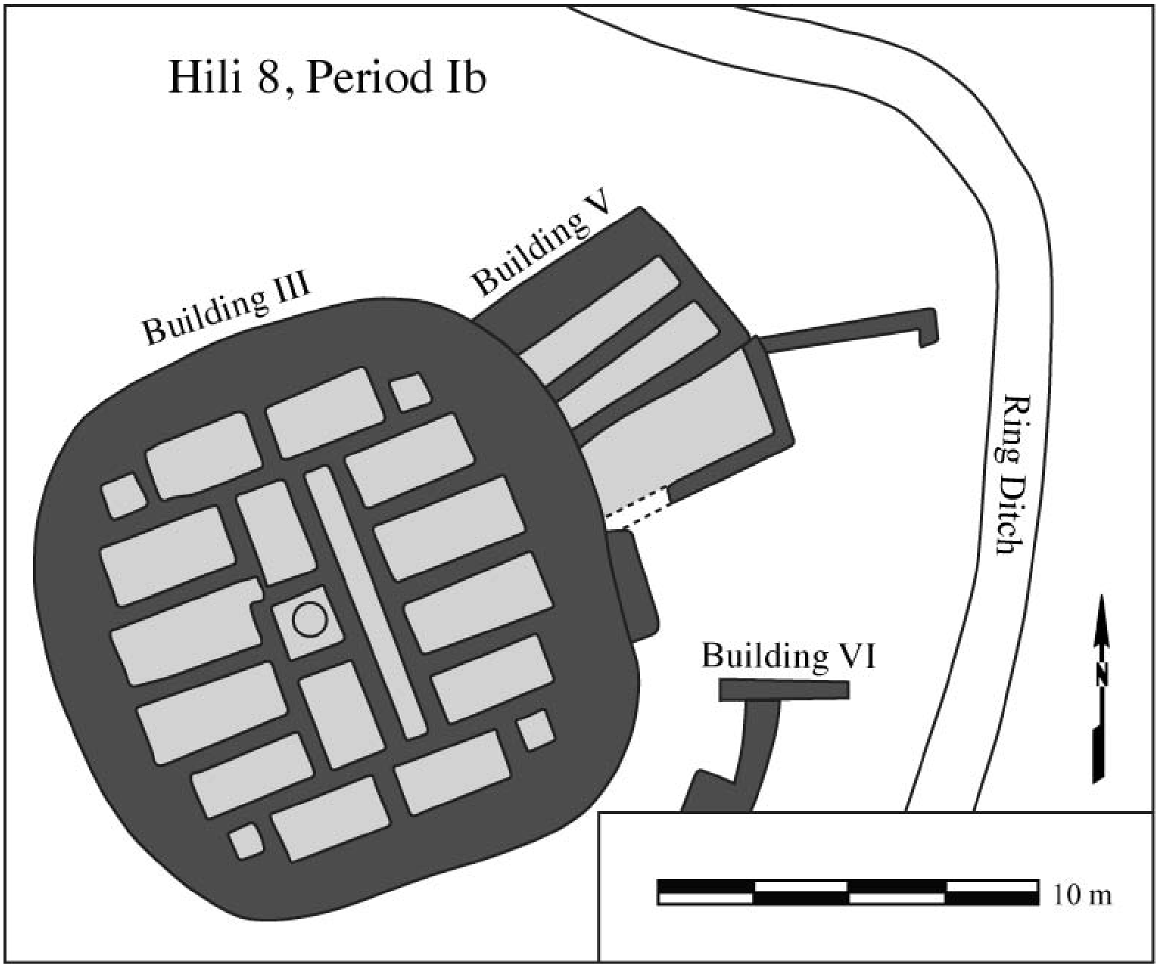

Fig. 3.8: Plan of Hili 8, Period I tower (Building III) and outbuildings. After Cleuziou 1989a: Plate 11.

addition.[161] Surrounding the tower and its outbuildings is a ditch or moat feature that was gradually filled with water-laid, greenish sediment. Fragments of imported Mesopotamian ceramics recovered from throughout these contexts date Period I to ca. 3100-2900 BCE (Cleuziou 1989a:75).

During the Early Umm an-Nar (Hili Period II a-c_1), the earlier square mudbrick tower (Building III) was used as a foundation for a new, slightly larger (22 m diameter),

[161] In his preliminary report, Cleuziou dates the entirety of Buildings III and V to Period Ia. However, he recognizes the contemporaneity of the structures is uncertain (1989a:65). A similar platform features are found at Bat's Kasr al-Khafaji and Kasr al-Khutm (cf. Cattani *et al.* 2017; see also **Section 4.3.1**).

round mudbrick tower (Building IV; see Fig. 3.9).[162] At the same time, the platform Building V was also abandoned and an independent, rectangular (5.5x6.5 m) Building II was constructed roughly 2 m northeast of the tower. This structure has stone and mortar foundations that form four rectangular chambers, all of which are filled with mud, and a mudbrick superstructure that creates an elevated platform. Although Building II is a freestanding structure, it is likely that it was functionally linked to the Period II tower in the same manner as Building V was related to the Period I tower. Both structures are surrounded by a circular ditch feature the may have originally served as a source or repository of irrigation water (Cleuziou 1989a:68).

The first contexts related to domestic-type activity identified at Hili 8 also date to the Early Umm an-Nar (Hili Period IIc_1) and were found in association with alterations made to Building II. The the surface of the Building II platform was expanded with two small mudbrick terraces added to its northern and southern faces. Two roughly rectangular spaces or rooms enclosed by mudbrick walls were also added abutting the terrace additions to the east. Both enclosed areas featured clay floors with Umm an-Nar ceramic sherds embedded into their surfaces. Based on these finds, Cleuziou suggests interpreting the Building II rooms as living spaces (Cleuziou 1979:21; 1989a:68-69).

The Middle Umm an-Nar occupation at Hili 8 (Hili Period II c_2-e) is characterized by expanding occupational contexts in the area to the east of the tower. In Period II c_2 a small, rectilinear mudbrick structure (ca. 4.5x6.5 m) was constructed to the east of

[162] The Building IV tower is poorly preserved and its interior layout cannot be determined in detail. However, it is clear that the location of the well is moved from the center of the tower (where it was located in Period I) to its northeastern edge. This shift may suggest a corresponding change in the use of the tower's interior space (cf. Cleuziou 1989a:67-69).

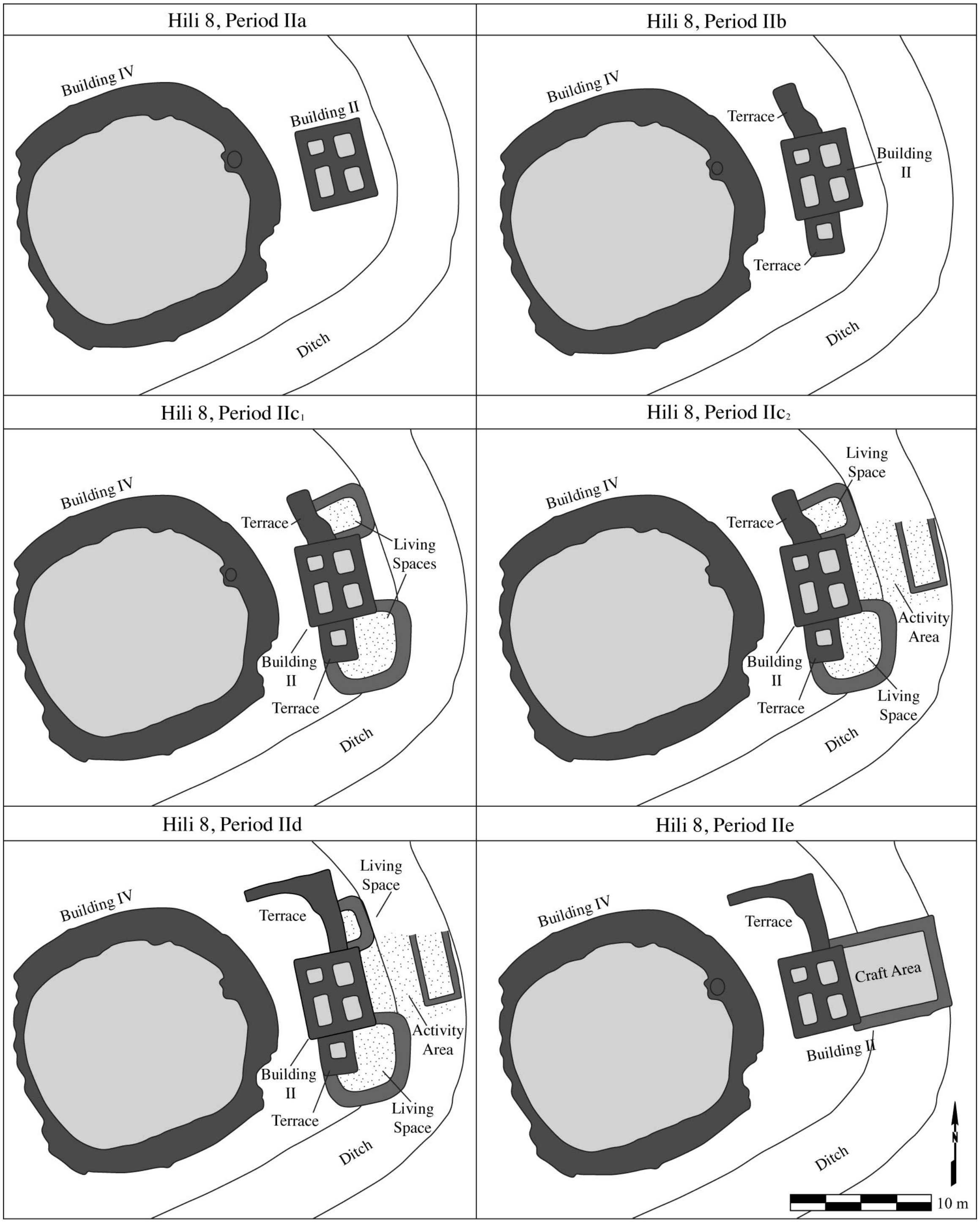

Fig. 3.9: Phased plans of Hili 8, Period II tower (Building IV) and outbuildings. After Cleuziou 1989a: Plates 12, 13, 14, 15, 16, & 17.

Building II, within the ditch feature that rings the tower. The building is composed of a room enclosed by a mudbrick wall on at least three sides and an exterior activity space to its west, between the it and Building II. Both the interior and exterior spaces contained clay floors with associated collections of Umm an-Nar ceramics. The floor of the exterior western space was covered in a layer of light grey ash, which Cleuziou suggested may be the remains of burned reed roofing (1979:22). While the precise function of these spaces remain unknown, they are characterized as occupational or living surfaces in the site reports (1979:22-23; 1989a:70).

The subsequent Period IId witnessed a large (2 m wide) mudbrick wall added to the northern end of Building II. This wall extends 6.5 m to the north before turning to the west for a further 4 m. The overall preservation of this feature was poor and little portable material culture was found in association with it. Nevertheless, Cleuziou tentatively suggested that it may have served as yet another platform or terrace extension of Building II (1989a:70).

During Hili's Phase IIe, the area east of the tower was completely remodeled. While the original, rectangular structure of Building II was left in place, its later additions to the east and south were demolished and a large mudbrick terrace (ca. 6.5x6.5 m) was added against its eastern face. The terrace's surface was covered in a number of fire pits, kilns, crucible fragments, and copper slag. Such clear evidence of craft production characterizes this addition to Building II as a workshop, probably related to the nearby (Building IV) tower monument. A series of small post holes indicate that at least portions of this space were either enclosed or roofed (Cleuziou 1979:22). These contexts are securely dated to the Middle Umm an-Nar Period through both radiocarbon analysis of charcoal from the kilns, which proved a date range of 2400-2200 cal. BC, and stylistic parallels of ceramics found throughout the craft production area (Cleuziou 1989a:71, 76-77).

During the Late Umm an-Nar (Hili Period II f-g), the craft production area on the eastern terrace extension of Building II was abandoned. Instead, Building II was expanded once again to the north with a large mudbrick and stone terrace. The mudbrick tower monument is also reconstructed during this period (Building I). Both Period IIf structures are poorly preserved and little in situ materials were discovered. Yet, surrounding deposits contained substantial quantities of ceramics that are stylistically distinctive for the Late Umm an-Nar Period (Cleuziou 1989a:77; 1989b).

In the subsequent Wadi Sûq Period (Hili Period III), the Hili 8 tower is modified yet again and further structures with associated domestic contexts were identified in its surrounding area (Cleuziou 1989a:71).

Although often cited as a key example of an Umm an-Nar oasis settlement, the excavated occupational contexts at Hili 8 are lacking in clear evidence for domestic-type activity. The locations and forms of any possible house structures also remains unknown. However, details of the site's tower and its surroundings help to clarify aspects of the lifestyles and subsistence strategies practiced by the Umm an-Nar population of the al-Ain oasis. The importance of the Hili 8 tower and its neighboring platform structure(s) as community focal points is demonstrated by their long-term maintenance and reconstruction events. While the nature of the activities demonstrated in the area to the east of the tower appear to vary over time, with the Period IIe craft production being the clearest, the area is consistently utilized by at least a portion of the population throughout the Umm an-Nar Period. Additionally, impressions of domesticated strains of several cultivated plants found in the mud bricks of Building II[163] and fragments of a canal-based irrigation system in the nearby oasis suggest that irrigated agriculture was in practice at the site as early as the Late Hafit Period (cf. Cleuziou & Tosi 1989; 2007). Hili, and Hili 8 in particular, thus remains an important case study for understanding the development of Umm an-Nar society and lifestyle for the Omani interior.

3.3.3b al-Maysar

The clear Late Umm an-Nar domestic contexts found at the site of Maysar 1, located in the Wadi Samad system of the Hajar Mountains' inner piedmont, contrast with the relatively ambiguous settlement at Hili 8. First discovered by the American survey expedition from Harvard University in 1973 (cf. Hastings *et al.* 1975), al-Maysar later became the primary research focus of the German Mission to Oman from 1977 to 1991. The German Mission was led by Gerd Weisgerber of the German Mining Museum and had a research goal of examining the history of and methods employed in copper extraction and processing in ancient Arabia. During the Early Bronze Age, the Oman Peninsula is textually attested as an important copper source for the larger Near East (cf. Edens 1992; Hauptmann 1985; Potts 1990b:44; 1991b; Weeks 1999; 2003; Weisgerber 1980; 1981; 2007b). Al-Maysar provided Weisgerber with multi-period evidence of this ancient copper industry (cf. Weisgerber 1980; 1981; 1991; Weisgerber & Yule 1996; 1999). In the course of studying the site's metallurgical remains, the German team was

[163] Grains include emmer wheat, bread wheat, two-row and six-row barley, and controversially millet. Fruits include melon and date (cf. Cleuziou & Costantini 1980; Cleuziou & Tosi 1989; Potts 1993a; Tengberg 1998).

able to identify settlement and mortuary contexts dating from the Early Bronze Age through the early Islamic era. While not the project's primary focus, Maysar's Umm an-Nar settlement remains are some of the best-recorded and published domestic contexts currently available for the Omani interior.

The site of al-Maysar is composed of over 50 'sub-sites' scattered across the Wadi Samad valley and surrounding hills (cf. Weisgerber 1981:Fig. 3). The known Early Bronze Age remains concentrate at the site's center, in the general vicinity of an Umm an-Nar tower (Maysar-25). Two Early Bronze Age settlement areas have so far been identified: Maysar-1 to the north of the tower and Maysar-6 to its southeast. Together these remains cover an area of over 200x70 m and Weisgerber suggests that, in the Umm an-Nar Period, the settlement is likely to have been larger (2007b:251). Additionally, an assortment of Hafit and Umm an-Nar tombs can be found throughout the valley, especially in the hills west of the tower.

Between 1979 and 1980, the German Mission carried out exploratory excavations at Maysar-1 and -25 in order to further investigate the Early Bronze Age methods used for mining and metalworking at the settlement level (cf. Weisgerber 1980:77-89; 1981:191-196). At Maysar-25, excavations focused exclusively on the tower, while at Maysar-1 seven rectilinear buildings were selected for excavation: Hauses 1, 4, 5, 6, 20, 28, and 31. Although absolute dates are currently unavailable, Maysar-1 appears to have had a limited period of occupation, with two clearly defined phases.[164] The earlier of these phases was identified in contexts beneath the excavated buildings. It consists of

[164] Based on the published ceramic finds, a Late Umm an-Nar period date is probable (cf. Weisgerber 1980: Fig. 42, 45; 1981: Fig. 17).

many hearths of various sizes cut into a gravel surface and the fragmentary remains of a furnace used for smelting copper, presumably extracted from the surrounding hills. No architecture has yet been identified. Weisgerber suggests that during this period, Maysar was purely a copper production site, rather than a self-supporting settlement (Hauptman & Weisgerber 1981; Weisgerber 1981; 2007b:252).

The second phase of occupation at Maysar-1 witnessed the construction of eight or more rectilinear, stone buildings arranged along a 3 m wide street that runs north-south (see Fig. 3.10). Despite some erosion damage, it appears that all structures in the settlement have rectilinear floor plans and are constructed of mudbrick on stone foundations. Buildings are composed of one or more rooms set within a walled courtyard. While the courtyard spaces were found to contain evidence for a mixture of domestic activities (typically including hearths, ovens, grinding stones, and trash pits that suggest food preparation and waste disposal), all of the excavated buildings housed some evidence suggesting that ceramic or metallurgical craft production was carried out inside them. In an unusual architectural quirk, cast off waste from this craft production (chunks of copper slag and ceramic sherds) are frequently mixed into the the mortar of the building foundations.[165]

Although the excavated sample size is limited, there is evidence to suggest a standard building plan was used at Maysar-1 that consists of: a large, rectangular main room; two small rear rooms; and an enclosed or semi-enclosed courtyard. Of the eight excavated buildings, three clearly follow this plan – Hauses 1, 20, and 31. All three

[165] Weisgerber suggests that the slag built into the walls of the Maysar-1 buildings dates to the earlier phase of occupation (2007b:252).

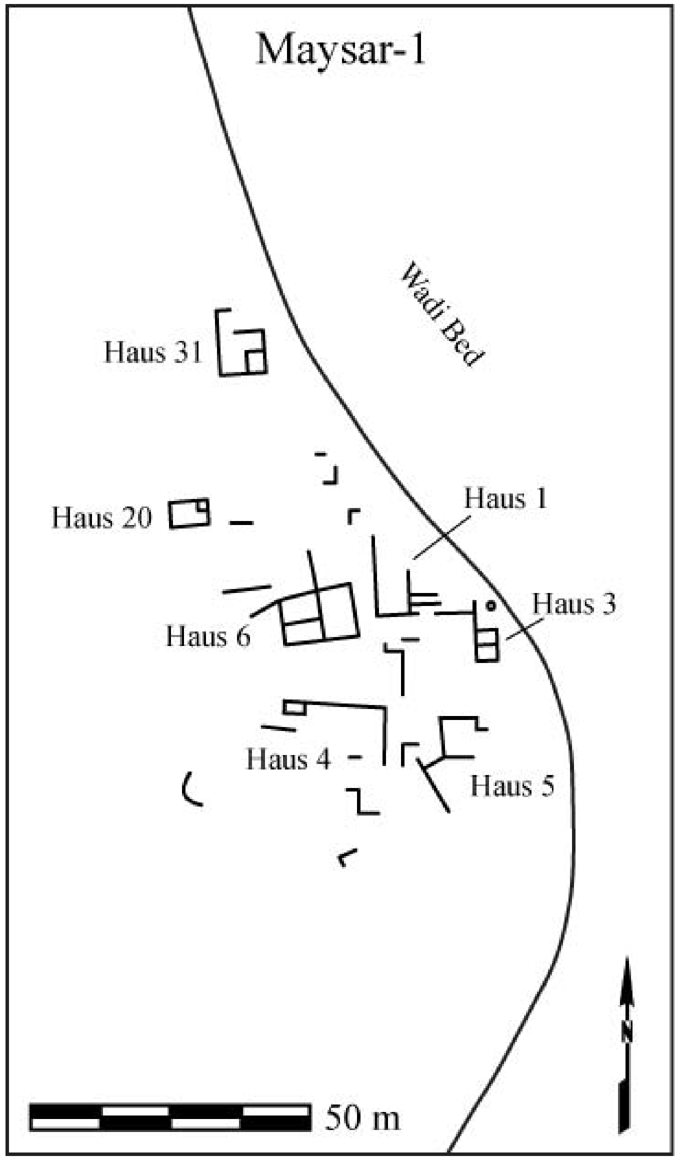

Fig. 3.10: Schematic plan of the Maysar-1 settlement. After Weisgerber 1980: Fig. 28.

buildings were found to contain evidence for craft production within the main room, while concentrations of hearths, ceramics, and rubbish accumulation in the courtyards suggest that cooking and other domestic activities were carried out in the unroofed space. The best-preserved example is Haus 1, located next to the north-south street. This building's large, rectangular room is oriented parallel to the street and entered through a doorway in its narrow southern wall. The room contained the fragmentary remains of a furnace installation at its center, along with an anvil stone and copious amounts of copper slag. Two fragmentary, narrow rooms (5.20 m long) extend to the east from the main room's long wall, possibly serving as storage spaces. Finally, the courtyard, also located east of the main room, contained several small fire pits and a large *tannur* or oven suggestive or food preparation. Hauses 20 and 31 are less well preserved, but follow a similar structural and functional pattern. A collection of copper slag, crucible fragments, and casting molds in Haus 31 suggest that copper smelting and working were also practiced within. In contrast, the main room of Haus 20 contained the remains of a pottery kiln. Weisgerber interprets these structures and their associated courtyards as serving dually as private homes and workshops for craftsmen (1981:192).[166]

The largest of the buildings excavated at Maysar-1, Haus 6, located directly across the street from Hause 1, also provided excavators with substantial evidence for copper working. At least two construction phases are apparent in the building foundations, with the earlier phase characterized by thin walls and an irregular floor plan that is largely obscured by the larger secondary phase. In its final manifestation the rectangular structure is composed of four roughly square rooms, the northeastern of which is interpreted as the workshop (Weisgerber 1981:193-194). This room's internal space is subdivided by a short wall or buttress running roughly half its length. Within the workshop excavators uncovered an anvil and hammerstone, numerous small fire pits, and a large, oval hearth containing kiln fragments and copper slag. Also of note in Haus 6 is a small, semicircular stone-lined basin abutting its northwestern exterior wall. A similar

[166] Weisgerber specifically interprets House 1 as the home of a coppersmith (1981:192).

exterior feature is also associated with the fragmentary Haus 31. According to Weisgerber's interpretation these basins were used for storing water (1981:193).

The so-called Haus 4,[167] to the south of Haus 6, is a large (11x17 m), enclosed courtyard featuring numerous installations related to craft production. Thick walls (1.40 m) constructed of large stones set into mud mortar are preserved along the courtyard's northern and western perimeters, with a small, elevated stone platform accessible by a stairway abutting the southern end of its western wall. Within the courtyard, the ground surface was speckled with large fire pits and other pyrotechnic installations, including a large *tannur* and a keyhole-shaped kiln.[168] Further copper processing is indicated by the fragmentary remains of a round, stone forge with a nearby anvil and hammerstone. Finally, a circular (1.40 m diameter), stone-lined cistern is located at the courtyard's center providing large scale water storage. It is fed by a 7 m long drainage channel, lined with finely cut limestone blocks, that presumably collected runoff from the surrounding craft activities.[169] Haus 4 was also a particularly rich source for artifacts, including: a carved stamp seal (Weisgerber 1981:Fig. 53); several intact, Late Umm an-Nar storage jars; and, of particular interest to the German Mining Museum, a cache of whole copper ingots (cf. Weisgerber 1991: Fig. 11). The Haus 4 courtyard thus appears to have been

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[167] The structure was initially interpreted as a domestic house, similar to the other buildings excavated at Maysar-1, but on a larger scale (Weisgerber 1980:88). The structure number and 'house' designation were maintained for purposes of consistency as excavations continued and Haus 4's nature was clarified.

[168] A second kiln was discovered just north of the Maysar-1 settlement (Weisgerber 1980:89). While similar in shape and composition, this kiln is on a much larger, possibly industrial scale. It's location outside the settlement suggests small-scale craft production was more likely to have taken place in a household or workshop setting, while the environmental impacts such a large kiln necessitated more distance from the settlement.

[169] Weisgerber suggests this may have been fed by rainwater rom the roofs of the neighboring buildings (1981:192). A similar, less well preserved example of a drain and cistern is found at the site of R'as al-Jinz , discussed below (Cleuziou & Tosi 2000:38).

the settlement's center for larger scale craft production, beyond what could be accomplished within the smaller buildings discussed above.

The remaining structures excavated at Maysar-1 are far more fragmentary, having been damaged by wadi erosion. Haus 3, to the southeast of Haus 1 and immediately next to the seasonal wadi bed, is particularly badly damaged. The most the significant find from this structure is the round, stone-lined well shaft in its damaged eastern half. The well shaft extends down at least 13 m below the modern surface and presumably provided the household or larger community with a year-round water source (cf. Weisgerber 1980:84-6). Hauses 5 and 28 are also badly damaged by erosion and later stone robbing that make their plans unclear. Despite their fragmentary condition, all three structures were found to contain evidence of copper working, food production, and rubbish disposal that align with the established pattern of Maysar-1's settlement buildings.

Supplementing the settlement excavations at Maysar-1, the German Mission also excavated the Umm an-Nar tower Maysar-25 (cf. Weisgerber 1981:198-204; see Fig. 3.11). In contrast with Hili 8 and the tower sites on the Horn of Oman, no rectilinear architecture or domestic contexts were uncovered in the monument's immediate surroundings. The 21.2 m wide structure is situated on a rocky hill[170] roughly 1 km south of Maysar-1 and is constructed of roughly hewn limestone blocks. The tower's surface was accessed from the north by a wide ramp constructed of stone and packed mud. As is

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170 The hill was originally home to two Hafit tombs, which were largely disassembled prior to the construction of the tower. The excavators were able to identify the tombs based on the remains of their circular foundations (cf. Weisgerber 1981:198).

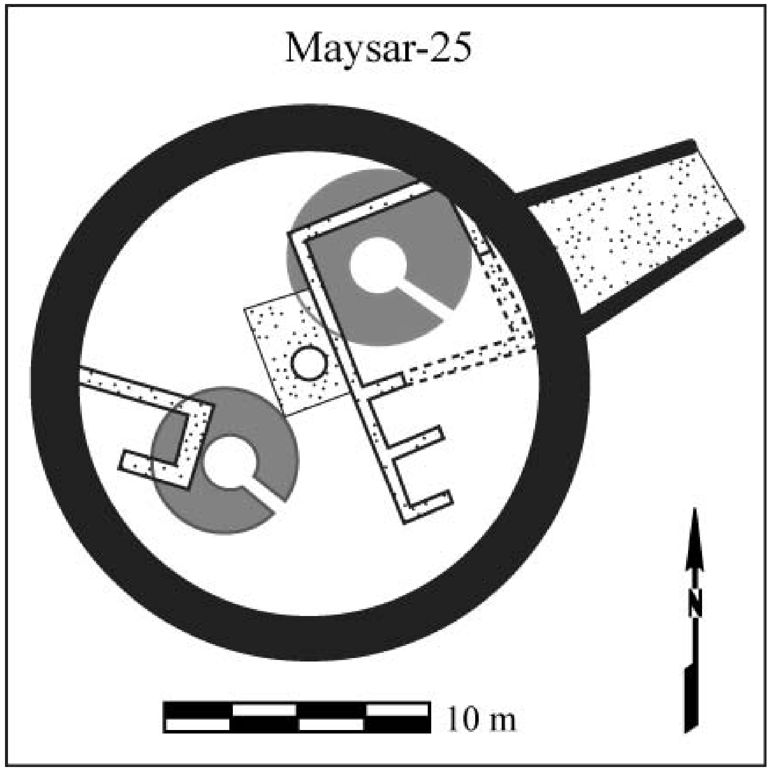

Fig. 3.11: Maysar-25 tower, mudbrick structures, and underlying Hafit tombs. After Weisgerber 1981: Fig. 26.

typical in Umm an-Nar towers, a stone well shaft set in a rectangular podium is preserved in the tower's center. However, in contrast with other excavated Umm an-Nar towers whose surfaces are poorly preserved, Weisgerber was able to identified two rectilinear mudbrick buildings on the surface of Maysar-25. According to his reconstruction of the site, these buildings were situated within the circular enclosure formed by the monument's outer wall (1981:198-199).[171] The larger of these buildings appears to have had three rooms (a large, square 'living' or reception space and two narrow rooms or

[171] Weisgerber reconstructs a walled, fortress-like enclosure comparable to the famed 17th century CE tower at Nizwa (cf. 1981:Fig. 27). Such interior structures and defensive outer walls built above the level of the tower platform have not been found at Umm an-Nar monuments elsewhere in the Oman Peninsula. The fragmentary foundation plans of the internal mudbrick structures suggest that they either awkwardly abutted the enclosing tower wall or that the tower wall did not, in fact, rise above the level of the interior tower surface.

niches), while the smaller is a single room structure. As no evidence of domestic activities was recovered during the excavation of either building, Weisgerber concludes that the tower did not function as a living structure but rather interprets it as a defensive refuge for times of trouble (1981:204).

The Umm an-Nar contexts at al-Maysar appear to represent a specialized and possibly atypical community strategically exploiting copper resources in the Hajar Mountains. While the metallurgically oriented lifestyles demonstrated at Maysar cannot be assumed representative of the larger Umm an-Nar society, the patterns demonstrated in its organization of private and communal space are valuable examples of Late Umm an-Nar settlement and household organization. It is notable that the Maysar-25 tower, while strategically situated in the center of the Wadi Samad valley, is located at some distance to settlement and mining areas. In Maysar-1, settlement layout and structures demonstrate regularity in building form and construction methods that suggests a pre-planned construction environment. The repeated combination of craft production and domestic contexts within the same structure raises the potentiality of multifunctional houses and households engaging in specialized modes of domestic economy.

3.3.3c Bisyah

The site of Bisyah features a large collection of Umm an-Nar remains: mortuary, monumental, and (reportedly) domestic. However, only limited information is so far available in the published literature. The site is located in the southern hills of the Hajar Mountains' inner piedmont zone and has been primarily researched by Jeffery and Jocelyn Orchard as part of the Hajar Project (cf. Orchard 2000; Orchard & Orchard

2002). At least five Umm an-Nar tower monuments have been identified scattered across an archaeological landscape of up to 350 hectares. Orchard and Orchard suggest that, during the Umm an-Nar Period, this broad area functioned as a large, low-density oasis town that was economically dependent upon oasis agriculture (Orchard & Stanger 1994:79; 1999).[172]

The most well-documented Umm an-Nar settlement contexts at Bisyah come from the Salut Plain, both on the side of a natural hill and in the general vicinity of a monumental tower (cf. Esposti 2013; Orchard 2000). The remains of rectilinear stone architecture and Umm an-Nar ceramics are visible on the modern ground surface of a hill, known as Karn Karhat Lahivid. Although they have yet to be excavated, these remains are interpreted as house platforms and domestic debris (Orchard 2000:172).

Substantial excavations have been carried out at Bisyah's large Salut tower and its surroundings by Michele Esposti and a team from the University of Pisa since 2010 (see Fig. 3.12). The ca. 25 m wide, stone tower is situated on the Salut Plain, on an natural ridge of caliche, and is encircled by a ring wall and two concentric ditches. The ditches and a network of what appear to be water channels leading from them support the theory that such features, and Umm an-Nar towers in general, are linked to irrigation and water management (Esposti 2013:5, 10-11, 25-29). Three irregular buildings (Structures 1, 2, and 3) that survive as coarsely assembled stone wall foundations, were found to the east of the tower: the two in the space between the two ring ditches and the third on the

[172] However, the reconstruction of Bisyah's agricultural oasis landscape proposed by Orchard and Orchard (then Orchard and Stanger) has been refuted (cf. Potts 1997). Alternative, more broadly accepted reconstructions view the landscape as populated by numerous small settlements (cf. Magee 2014:98-99).

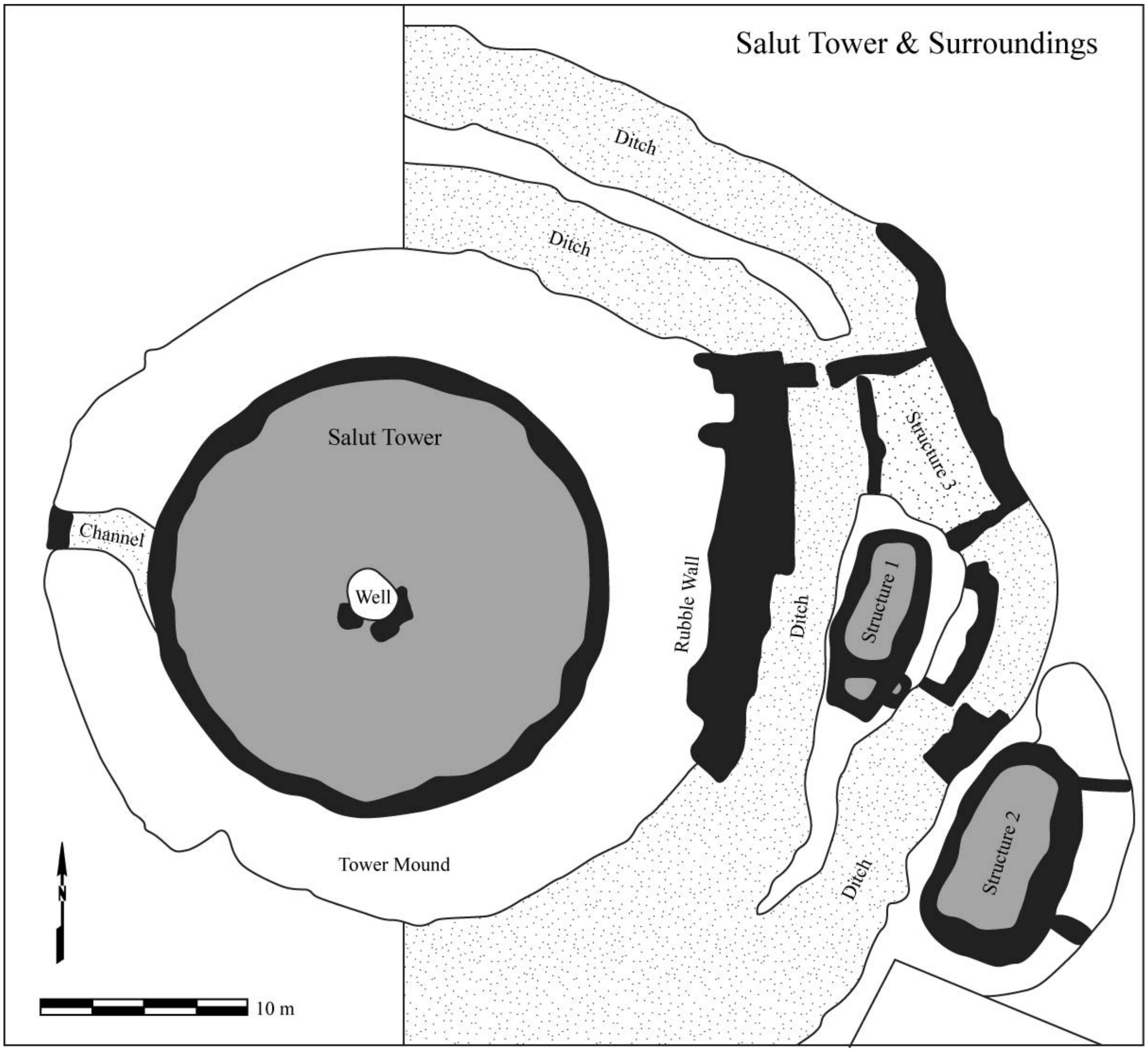

Fig. 3.12: Plan of Salut tower, ditches, and outbuildings. After Esposti 2013:2, 4, Figs. 1 & 2.

eastern edge of the outer ditch. However, while Umm an-Nar ceramics were recovered from throughout the excavations, no contexts survived within or in association with the buildings to indicate their functions (Esposti 2010). Later Iron Age and Early Islamic era reoccupations of the site have obscured or destroyed much of the Early Bronze Age contexts.

3.3.3d al-Ghoryeen

Al-Ghoryeen is an Umm an-Nar site first identified by Nasr al-Jahwari during his survey of the Wadi Andam in 2004-2005. The site is preserved at surface level on the western edge of the Wadi Mahram, a tributary of the Wadi Andam, and covers an area of roughly 15 ha. Within this area, Ghoryeen is home to an Umm an-Nar cemetery of nearly 50 tombs, a single stone tower (25-30 m diameter), and "most importantly, an almost completely preserved domestic occupation area, which is visible on the surface as stone alignments marking the location and layout of walls and buildings" (al-Jahwari & Kennet 2010:207; see Fig. 3.13). The rectilinear architecture that characterizes the portion of the site interpreted as a settlement includes an estimated 50+ structures that stretch over 200x150 m. Buildings are composed of stone wall foundations with no visible superstructure and occur in in various scales and floor plans that range from single room structures to multi-cell compounds. Although no excavation has yet been carried out in the rectilinear structures at al-Ghoryeen, Umm an-Nar ceramics that were recovered from this area during survey date its occupation to the second half of the third millennium BC (al-Jahwari & Kennet 2010:207).

3.3.3e Others (al-Khashbah, 'Amlah, Bahlah, Rustaq, & Nizwa)

In addition to the sites discussed above, ongoing research and regional surveys in the Omani interior have identified numerous other locations where Umm an-Nar settlements are either tentatively identified or are likely to exist. While further research is necessary to confirm the character and content of each of these sites, I briefly mention

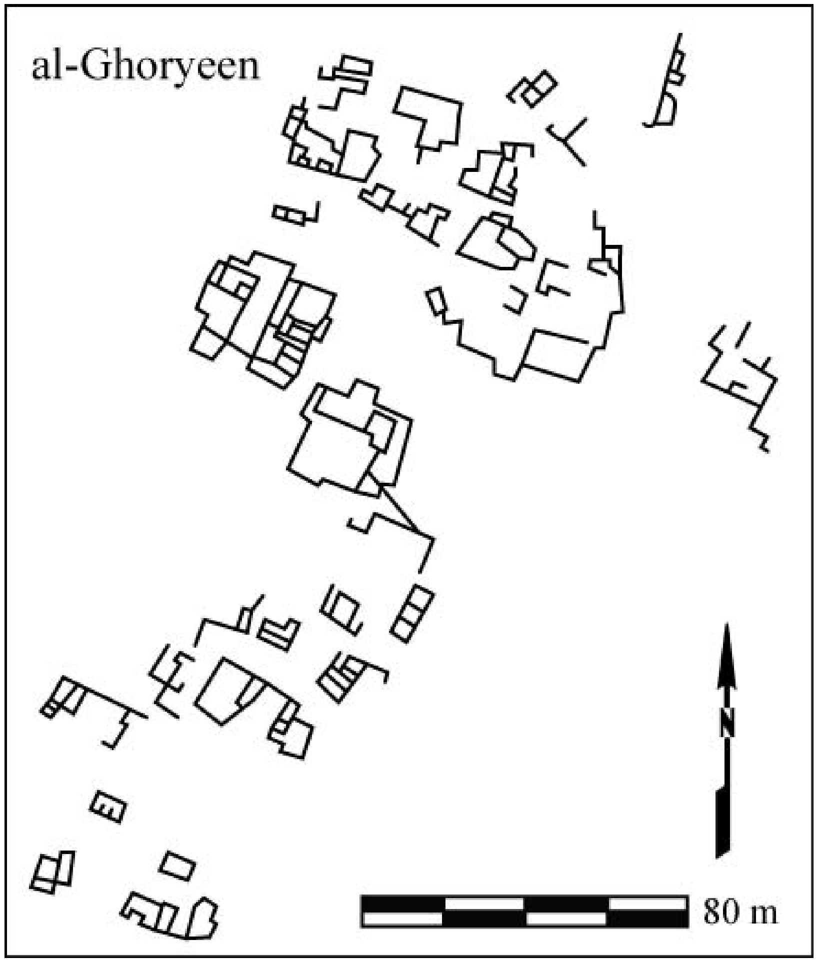

Fig. 3.13: Schematic map of the al-Ghoryeen settlement. After al-Jahwari & Kennet 2010:208, Fig. 9.

them here to demonstrate the probable density of the region's Umm an-Nar settlement pattern.

Most notable of these probable Umm an-Nar settlements is the site of al-Khashbah, located in the Wadi Samad. This large site (ca. 900 ha) has been surveyed numerous times (cf. Hastings et al. 1975; al-Jahwari & Kennet 2010:205; Weisgerber 1980:177) and is currently the subject of excavations by the German Mission to Oman under Stephanie Döpper and Conrad Schmit (cf. Schmidt & Döpper 2017). As of yet, both excavations and surveys of al-Khashbah have focused on the site's monumental contexts: four Umm an-Nar towers; a large, rectangular platform; and a field of 40 or more tombs. However, areas of dense pottery scatters visible on the modern ground surface suggest that possible occupational contexts are yet to be uncovered (al-Jahwari & Kennet 2010:206-207).

Also worthy of special note is the site of ʻAmlah, located in Wadi al-Ayn a relatively short distance from Bat. This site was surveyed by Beatrice de Cardi during her extensive surgery in the region (de Cardi *et al.* 1976:103-117). She identified a number of Umm an-Nar tombs, a possible five tower monuments, and several large structures that she interpreted as Early Bronze Age "homesteads" (1976:109). The Umm an-Nar remains at ʻAmlah will be further discussed and analyzed in the forthcoming dissertation by Eli Dollarhide.[173]

Other oasis sites that feature Umm an-Nar towers and some indication of nearby occupation (most often in the form of ceramic scatters) include areas in the modern centers of Bahla, Rustaq, and Nizwa (cf. Cleuziou 2003; de Cardi *et al* . 1976; al-Jahwari 2009; Kennet *et al.* 2016; Magee 2014:100). Less well-known locations include Yanqul (Harrower *et al*. 2014), Qumayra, Adam, Araqi, Badin, Balad al-Maaldan, al-Arad, Araqi North, and Wadi Ibra (cf. al-Jahwari 2009; al-Jahwari & Kennet 2008; 2010; Magee 2014:100).[174]

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[173] With his dissertation, Dollarhide considers the Early Bronze Age settlement and exchange patters in the greater Bat region (*forthcoming*).

[174] The as of yet unpublished sites of Qumayra, al-Arad, and Araqi North notably feature rectilinear architecture and Umm an-Nar ceramics visible from the modern ground surface (Thornton: *personal communication*).

Extensive research has also been carried out at settlement contexts in Bat and its satellite site of az-Zebah (cf. Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014). The results of these studies are discussed in detail in the forthcoming chapters (see **Chapters 4, 5,** and **6**).

3.4 The Umm an-Nar Settlement in Summary

The archaeology of the Oman Peninsula's Early Bronze Age is a field growing in interest and clarity. While there is work yet to be done, archaeologists focusing on the Umm an-Nar Period have made great strides in detailing the diversity of peninsula's early settlements, as demonstrated by the field research outlined above. Umm an-Nar settlements and settlement architecture appear to occur in a variety of forms and compositions that developed over the course of the period (see Table 3.2). Yet, within each geographic and environmental region some general trends can be observed.

Bat Period	R'as al-Jinz 2	Umm an-Nar Island	Tell Abraq	Hili 8	al-Maysar 1
Wadi Sûq	-	-	X	Period III	-
Late Umm an-Nar	Periods III & IV	Period II	X	Period II f-g	Phase 1 & 2
Middle Umm an-Nar	Period II	Period I & II	X	Period II c_2-e	-
Early Umm an-Nar	-	Period 0	-	Period II a-c_1	-
Hafit	-	-	-	Period 1 a-c	-

Table 3.2: Major Umm an-Nar settlement sub-period occupations (after Cleuziou 1989a: 63-72; Cleuziou & Tosi 2000; Friflet 1995:41, 239; Potts 1989; 1991; 1993a; Weisgerber 1980; 1981).

Sites along the Ja'alan Coast (e.g., Ra's al-Jinz, Ra's al-Hadd, al-Suwayh, etc.) tend to be composed of collections of rectilinear architecture that are constructed of either mudbrick alone or mudbrick on stone foundations. Despite the substantial scale of the occupation indicated by these architectural remains, most notably at Ra's al-Jinz, no monumental towers have yet been identified in this region. Evidence of domestic activity, in the form of hearths, rubbish pits, fishing equipment (e.g., fishhooks or net sinkers), and craft production (e.g., shell beads and bead making materials), is predominately in found in exterior or courtyard contexts. The shared courtyards at RJ-2 have been interpreted as suggesting that the site's Umm an-Nar population was organized into extended household groups based on kinship ties (cf. Azzarà 2009; 2015; Cleuziou 2002; 2003). Based on the environmental conditions and archaeozoological evidence from RJ-2, the site and its Ja'alan neighbors are believed to have been occupied on a seasonal (fall through spring) basis. During the summer months, the coastal populations probably dispersed to inland oasis sites such as al-Ayn (c.f., Blin 2007; Cleuziou 2003; 2009; Cleuziou & Tosi 2007:230-234; Costa & Wilkinson 1987; Lancaster & Lancaster 1992).

In the Horn of Oman and along the Arabian Gulf Coast, sites interpreted as Umm an-Nar settlements often, but not universally, feature a monumental tower with limited evidence of domestic activity found in its immediate surroundings (e.g., Tell Abraq, Kalba 4, and Bedya 2). Yet, rarely has any trace of non-monumental architecture been identified, and then only in the form of postholes that suggest reed or palm frond structures. Traces of such buildings, which are unlikely to preserve in the archaeological record, raise the possibility that sites in this region may have been substantially larger than they presently appear. The clear exception to this trend is the settlement on Umm an-Nar Island, where a variety of rectilinear stone architecture was identified but without an associated tower monument. Evidence for domestic activity found at these sites occur in the form hearths, ovens, rubbish pits or middens, and fishing equipment. A series of smaller sites (e.g., Asimah, Ghandha Island, Abu Dhabi Airport, al-Sufouh, Mowaihat, and South ed-Dur) also found in this region consist of concentration of evidence for domestic activity (e.g., hearths, ceramic scatters, trash pits, and shell middens) but little or no architecture. Despite the ephemeral nature of many of these sites, Umm an-Nar populations in this region appear to have been sedentary throughout the year (cf. Gregoricka 2011). Noting the variations in site scale and occupational intensity, Phillips has suggested that we view the settlements on the Horn of Oman and Gulf Coast as occurring in a hierarchy that relates to the varying subsistence strategies practiced by each site's population (e.g., agriculture, pastoralism, maritime exploitation and trade, etc.; Phillips 2007; see **Section 5.2**).

Finally, potential Umm an-Nar settlements located in the Omani interior occur in a wide range of scales: from the large oasis sites such as Hili, Bisyah, Khashbah, and Bat (see **Chapter 4**) to the small "village" sites identified by al-Jahwari in the Wadi Andam (2009). Sites in the interior more consistently feature one or more tower monuments and multiple tombs[175] than do those on the coasts. Excavations of towers (e.g., Hili 8, Maysar 25, Salut, and examples at Bat; see **Chapter 4**) have encountered a variety of contexts in

[175] However, it must be noted that sites with monumental towers are far more visible than sites without and are thus more likely to be identified by archaeological surveys.

the monuments' immediate surroundings, including: water management in the form of ditches and canals, craft production (e.g., metallurgical installations and kilns), rectilinear architecture, and what appears to be domestic activity (e.g., food production, waste disposal, utilitarian ceramic scatters, and small-scale storage). Rectilinear stone buildings have been identified at a number of these sites, but, with the exception of Maysar and now Bat and az-Zebah, these have not been excavated. Such structures range from single room buildings to agglomerative, multi-celled compounds. The excavated structures at Maysar-1 consistently show that domestic activities were carried out in courtyards, while craft production (metallurgical and ceramic) took place within the buildings. The interpretation of sites in the Omani interior as depending on irrigation agriculture (cf. Cleuziou 1996) is born out by the remains of domesticated cultivars recovered from several sites (e.g., Bat, Hili, and Maysar). While the precise subsistence patterns and social organization of the Umm an-Nar communities in this region is yet to be determined (see **Chapters 5** and **6**), the consistent availability of water would have made year round occupation in oasis sites possible.

As this brief summary reveals, a rough profile of Umm an-Nar settlement patterns and lifestyles can now be constructed for each of the Oman Peninsula's broad regions.[176] While the most detailed evidence of the Early Bronze Age lifestyle and social organization is undeniably that from Ra's al-Jinz, this picture of Umm an-Nar society can and should now be supplemented with information from settlements from throughout the peninsula. Such a multi-regional perspective will help to create a more well-balanced

[176] An exception in this statement must still be made for the Batinah Coast, where very little information from the Umm an-Nar Period is yet available.

interpretation of the Umm an-Nar Period and its characteristic increasing social complexity. Of the regions discussed above, I suggest that the Omani interior is particularly lacking in clear settlement information. While several large-scale excavations have now been carried out at Umm an-Nar sites in the interior, occupational data from the rectilinear stone architecture commonly interpreted as representing the period's settlements has so far been limited to the contexts excavated at Maysar.

Within this wide picture of the Oman Peninsula's Umm an-Nar Period, the site of Bat and its satellite site az-Zebah (Döpper & Schmidt 2013; 2014) have great potential for enhancing scholarly understanding of the ancient society's lifestyle and social organization – both for the peninsula as a whole and for the Omani interior in particular. The site's location within the Wadi Sharsah, a tributary of the larger Khabir, in the Hajar Mountains inner piedmont makes it well situated to fill an underrepresented component of the region's settlement tradition. Bat's long history of occupation, which stretches from the Early through the Late Umm an-Nar and beyond, complements the detailed Late Umm an-Nar settlement information from Maysar-1 and the long-term evidence of occupation and craft production at Hili 8. Additionally, the broad architectural plans available for several of Bat's settlements can inform interpretations of other sites, such as al-Ghoryeen, where Umm an-Nar architecture is visible on the modern ground surface. In the chapters that follow (**Chapters 4, 5**, and **6**), I discuss Bat's Umm an-Nar settlement contexts in detail and from a variety of spatial and methodological perspectives. The results of these studies, in combination with the information presented in this chapter, will work towards constructing a regionally balanced perspective of Umm an-Nar society.

CHAPTER 4:

DEVELOPMENT OF THE BAT UMM AN-NAR SETTLEMENT LANDSCAPE

4.1 Introduction

It is by now well established that the Umm an-Nar was a period of increased social complexity that witnessed the proliferation of settlements of various sizes and compositions throughout the Oman Peninsula. Yet, as I argued in the previous chapter, archaeological understanding of this early settlement tradition and the social structure that it supported have thus far been hampered by a number of factors, most notably the history of scholarship and chronological uncertainties in the region. Now that I have discussed the current state of knowledge regarding Umm an-Nar settlements more broadly (see **Chapter 3**), I move on to consider the history, chronology, and development of the Umm an-Nar settlement as it pertains particularly to Bat. Using the conclusions of recent research by Chris Thornton and Royal Omar Ghazal (2016) and the results of C14-dated excavations by the Bat Archaeological Project (BAP) and others, I reconstruct the chronological progression of Bat's settlement landscape over the course of the Umm an-Nar Period. I further argue that only through such a refined chronological perspective is it possible to observe the long-term developments and increasing social complexity that gave shape to the site's Umm an-Nar society.

Amid an ancient landscape populated by dramatic tombs and monumental towers, the settlement component of Bat's Umm an-Nar history has until recently only been superficially studied (cf. Frifelt 1976; 1985; 2002a). Adding to the challenges faced by previous archaeologists at Bat, and of this region more generally, is the scholarly understanding of the Arabian Bronze Age chronology, which has been slower to develop than chronologies from elsewhere in the Ancient Near East (cf. Ehrich 1992). Estimates for the Umm an-Nar Period range from 2500-2000 BCE to 2800-2000 BCE, with no widely accepted chronological subdivisions (Potts 1993c; Thornton & Ghazal 2016:215).[177] Thus, in the absence of absolute dates, studies of Umm an-Nar materials often cannot achieve a chronological specificity more exact than the 500+ year period framework. Combined, these ambiguities have so far made it difficult for archaeologists to observe broad social developments within the Umm an-Nar settlement tradition.

The rich archaeological landscape at Bat provides an unparalleled setting through which to refine this chronological and social perception of the Umm an-Nar Period. The site's Early Bronze Age remains include multiple settlements with diverse compositions, situations on the landscape, and occupations that span the full length of the Umm an-Nar Period and beyond. Recent advancements in the understanding of the site's chronology and ceramic sequence identify for the first time three broad sub-phases in its occupational history (Thornton & Ghazal 2016:179-216). The long-standing research of the site's Umm an-Nar contexts, in combination with this more refined chronological perspective, makes it possible to construct a history for the site's Umm an-Nar settlement landscape. With this chapter, I present a detailed summary of the known Umm an-Nar settlement tradition at Bat. Through this discussion, I demonstrate that such settlements were not static artifacts but continuously developing stages for an increasingly complex Umm an-

[177] At Bat, the beginning of the Umm an-Nar Period is marked by the transition to stone towers and the appearance of black-on-red pottery (Thornton & Ghazal 2016:193).

Nar society. It cannot be reasonably assumed that the social and environmental conditions that shaped Bat's settlements are representative of all Umm an-Nar sites. And yet, the time-depth of Bat's uninterrupted history of occupation does allow for the site to serve as a case study in the diachronic development of Umm an-Nar settlements.

4.2 Setting the Stage

Located in the western inner piedmont of the Oman Peninsula's al-Hajar Mountains, the archaeological site of Bat is situated at the intersection of the Wadi al-Sharsah and Wadi al-Hijr, both tributaries of the much larger Wadi al-Kabir (see Fig. 4.1). This hilly region experiences a variable arid to semi-arid environment with unpredictable winter rainfall[178] (Sanlaville 2000). Within this larger area, Bat's location in the lower southern reaches of the wadi system provides the site with a seasonal water supply (Desruelles *et al.* 2016:43-44). Similar to other Umm an-Nar settlements, Bat is made up of many small subsidiary sites – mortuary, monumental, and domestic – dispersed across the wadi valley and its surrounding hills. The rocky hills and limestone outcroppings that compose the northern half of the Bat landscape are home to the many Hafit and Umm an-Nar tombs that compose the site's Bronze Age cemetery. The southern half of the landscape is contained within the wide, fertile expanse of the wadi valley. Here, where the modern village of Bat and its date palm groves commingle with the remains of ancient settlements and monumental towers, we find the portion of the site most pertinent

[178] The mean annual rainfall in the nearby center of 'Ibri is 90 mm, all falling between the months of December and April (Desrulles *et al.* 2016). This is well below the annual 200 mm minimum for dry framing.

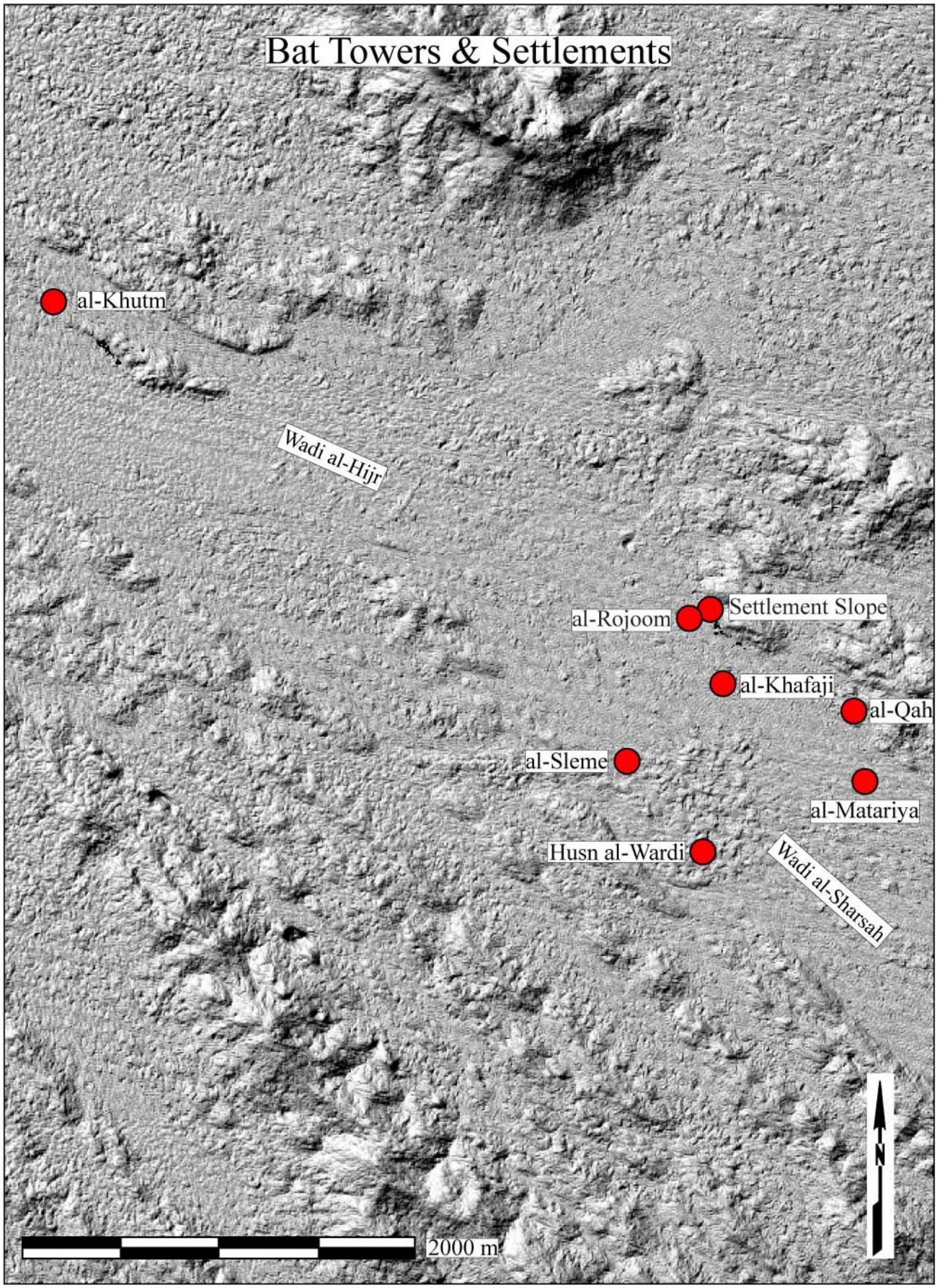

Fig. 4.1: Location of tower monuments and settlements on the Bat landscape.

to this dissertation. With the remainder of this section, I provide an overview of Bat's archaeological settlement remains, their history of research, and chronological specifics. This background material will set the stage for a chronological reconstruction of how Bat's settlement landscaped developed over the course of the Umm an-Nar Period.

4.2.1 Bat's Archaeological Composition and History of Research

When inscribed onto the UNESCO list of World Heritage Sites, Bat was celebrated for being "the most complete collection of settlements and necropolises from the third millennium B.C. in the world" (UNESCO 1988). In contrast with 'tell' sites found elsewhere in the Near East,[179] Bat is composed of an extensive yet dispersed array of archaeological materials spread across the wadi valley and dating to all phases of the Bronze Age and beyond. The Umm an-Nar archaeological landscape at the site features a total of seven documented monumental towers[180] and hundreds of tombs concentrated in the well-recorded necropolis in the northern hills.[181] In contrast, Bat's settlement remains have received far less attention. Evidence of Umm an-Nar domestic activity and rectilinear architecture are so far known from three areas of the site: the Settlement Slope, al-Khafaji, and the slightly more distant al-Khutm.[182] These settlements are situated

[179] Where the archaeological remains are densely concentrated in a central mound representing hundreds or thousands of years of continuous occupation.

[180] All of Bat's known towers have been the subject field research and four have been extensively excavated. For more on the documentation and excavation of Bat's Umm an-Nar towers, cf. Cable 2012; 2016a; 2016b; Cable & Thornton 2013; Friflet 1975; 1976; 1989; 2002a; 2002b; Gentelle & Frifelt 1989; Kondo 2011; 2016; Mortimer 2016; Possehl & Thornton 2007; Possehl, Thornton, & Cable 2008; 2009; 2010; 2011; Thornton 2016; Thornton & Cable 2012; Thornton, Cable, & Possehl 2013; 2016; Thornton & Mortimer 2012; Thornton & Schmidt 2013; 2015.

[181] For more on the documentation and excavation of Bat's Umm an-Nar cemetery, cf. Böhme 2011; 2012; Böhme & al-Sabri 2011; Cable 2012; Friflet 1976; Gentelle & Friflet 1989; Schmidt & Döpper 2011; 2013; Thornton & Schmidt 2015.

[182] The site of al-Matariya will also be discussed, as it is significant for establishing the pattern of settlements on the Bat landscape.

either within or immediately next to the wadi valley. The nearby settlement site of az-Zebah, located seven kilometers northwest of Bat within the Wadi al-Shawi'ay, is also considered as a peripheral component of Bat's interaction sphere.

Bat was first identified as a significant archaeological landscape by Anthony Witheridge[183] in 1966 and again shortly thereafter by Beatrice de Cardi as part of her extensive regional survey (1970:268; de Cardi *et al.* 1976:146). The Danish Archaeological Mission to Oman, led by Karen Frifelt, visited the site numerous times between 1973 and 1990, during which it carried out a series of exploratory surveys and excavations (Brunswig 1989; Frifelt 1976; 1985; 1989; 2002a; Gentelle & Frifelt 1989).[184] Through these efforts, Frifelt identified the first evidence of residential contexts and domestic materials known from Bat at the Settlement Slope (Brunswig 1989; Frifelt 1985:99; 1989). In recent years, archaeological research at Bat has continued under the German Mission to Oman (cf. Böhme & al-Sabri 2011; Döpper & Schmidt 2013; 2014) and the American-led 'Bat Archaeological Project' (BAP; cf. Thornton *et al*. 2016). At the invitation of Oman's Ministry of Heritage and Culture, Gregory Possehl began the American Mission with the stated research objective of determining how, when, and why the site's Umm an-Nar towers were built (Thornton, Cable, & Possehl 2013). Beginning

[183] An Englishman at the time a captain in the Sultan's armed forces.

[184] Frifelt's early research at Bat and in the wider 'Ibri region focuses primarily on the third millennium BCE mortuary remains. Her publications document the locations of over 300 Hafit and Umm an-Nar tombs (cf. Gentelle & Frifelt 1989; Frifelt 1985; 2002a). Her 1975 article contributed significantly to the still developing third millennium tomb typology and chronology.

The survey unit numbers assigned to Bat's significant architectural features by the Danish Mission continue in use today alongside the local names for the sites. Relevant to the current study are: Kasr al-Rojoom (Site 1145); Kasr al-Khafaji (Site 1146); Kasr al-Matariya (Site 1147); a large, rectangular structure on the Settlement Slope (Site 1155); and the Settlement Slope tower (Site 1156).

in 2012, under the supervision of Chris Thornton and Charlotte Cable, BAP expanded its program of research to include the increasing body of domestic contexts identified at the site. Excavations targeting Umm an-Nar settlements have now been carried out at al-Khafaji and the Settlement Slope, while an intensive survey was conducted at al-Khutm. The data presented and analyzed in this dissertation was collected between 2009 and 2015 under the direction of Chris Thornton, Charlotte Cable, Yasuhiso Kondo, Anne Mortimer, and the author.

4.2.2 Bat's Internal Settlement Chronology

The chronology of the Umm an-Nar Period is a subject of active study for archaeologists engaged with the Oman Peninsula. With sites often characterized by deflated stratigraphy and sparse C14 dates, chronological markers in the material culture are integral for reconstructing temporal contexts. As in many areas of the world, ceramics provide the most reliable and accessible source of prehistoric chronological information on the Oman Peninsula. However, due to the scarcity of stratified contexts in the region it has been almost impossible to progress beyond the broad ceramic categories of "Umm an-Nar" (2800-2000 BCE), "Wadi Sûq" (2000-1300 BCE), and Iron Age (1300-300 BCE). Such lengthy timespans reduce the effectiveness of ceramic sequences and typologies as chronological tools.

Exceptions to this rule come from the sites of Hili and Bat, located in the Oman Peninsula's inner piedmont zone, which provide more intact ceramic sequences. Until very recently, the most comprehensive available ceramic data came from the oasis site of Hili. The carefully constructed ceramic sequence from this site stretches from the beginning of the Umm an-Nar Period through the end of the Wadi Sûq (cf. Cleuziou 1989a; 1989b; Cleuziou *et al.* 2011; Méry 2000). However, the usefulness of Hili's sequence for studies focusing on Umm an-Nar settlements is limited, as it is primarily based on ceramics from funerary assemblages (cf. Cleuziou 1989a; 2002; 2003; Méry 2000). Indeed, Serge Cleuziou noted the existence of stylistic differences between Umm an-Nar pottery from settlement and funerary contexts in his early attempts at constructing a chronological sequence (1989a:82-83; 2002:193).

Filling this lacuna in our understanding of Umm an-Nar ceramics is a typology and chronology recently developed by Thornton and Ghazal based on pottery excavated from Bat's settlement contexts (2016:179-216). This sub-phased sequence complements and engages with patterns first recognized at Hili. Bat's sequence of settlement ceramics expands the range of forms, wares, and decorative styles that can now be temporally and contextually linked to the Umm an-Nar Period. Furthermore, the value of Thornton and Ghazal's sequence extends beyond clarifying Umm an-Nar relative chronology by firmly anchoring both the period and its subdivisions in the Oman Peninsula's Early Bronze Age through a collection of secure C14 dates (see **Appendix A**). As a result, the authors are able to recognize internal sub-phases within Bat's Umm an-Nar contexts, despite the dispersed locations of the remains and the scarcity of stratified settlements (cf. Thornton *et al.* 2016:2-4, 187-218; see Table 4.1). The period dates and chronological terminology used in this dissertation follows those proposed by Thornton and Ghazal.[185]

[185] Thornton and Ghazal's chronology notably differs from others in that it recognizes the Umm an-Nar Period as beginning with the appearance of black-on-red pottery, which coincides with the transition at Kasr al-Matariya from the mudbrick to the stone tower (Thornton & Ghazal 2016:193).

Comparative Regional Chronologies

Absolute Dates (BCE)	Archaeological Period	Hili Period	Bat Period
3000	Early Bronze Age	Period Ib Period Ia	Hafit
2900			
2800		Period Ic	Late Hafit
2700		Period IIc$_1$ Period IIb Period IIa	Early Umm an-Nar
2600			
2500			
2400		Period IIe Period IId Period IIc$_2$	Middle Umm an-Nar
2300			
2200			
2100		Period IIg Period IIf	Late Umm an-Nar
2000			
1900	Middle Bronze Age	Period IIIb Period IIIa	Early Wadi Sûq
1800			
1700			
1600			

Table 4.1: Comparative Regional Chronologies (Adapted from Potts 1993c; Cleuziou 1989a; 1989b; Thornton & Ghazal 2016:215, Table 9.3).

Using Thornton and Ghazal's chronology, it is now possible to trace the development of Bat's settlement tradition across time and space – from the Early through the Late Umm an-Nar and at its numerous occupational sites. The earliest indications of Umm an-Nar settlement so far identified at Bat come from the sites of al-Khafaji and the Settlement Slope, where the towers and small patches of surrounding domestic contexts date to the Early Umm an-Nar.[186] Moving forward in time to the Middle Umm an-Nar,

[186] While tower monument at the site of al-Matariya also dates to this early phase, no clear evidence of domestic activity or structures have so far been identified in their Early Umm an-Nar contexts.

the settlements at al-Khafaji and al-Khutm reach their occupational height. Evidence of domestic activity similarly intensifies during this period at the Settlement Slope, where we find the site's first examples of rectilinear architecture and the construction of a new, dramatically crenelated tower (Kasr al-Rojoom) directly across the wadi drainage channel. During the Late Umm an-Nar, the settlements at al-Khafaji and al-Khutm fall out of use, while the Settlement Slope and its Rojoom tower continue to expand. Additionally, the satellite settlement of az-Zebah is established in the nearby countryside. By the Early Wadi Sûq Period, evidence of sedentary occupation is limited to small sections of the Settlement Slope. Bat's occupational history, then, appears to be characterized by gradually shifting foci of activity that suggest that, while the Bat landscape was settled throughout the Umm an-Nar Period and beyond, specific locations were preferred during certain phases.

Settlement Chronology

Absolute Dates (BCE)	Bat	Settlement(s) Occupied
3000 2900	Hafit	Settlement Slope al-Khafaji al-Matariya*
2800	Late Hafit	al-Khafaji al-Matariya*
2700 2600 2500	Early Umm an-Nar	Settlement Slope al-Khafaji al-Matariya*
2400 2300 2200	Middle Umm an-Nar	Settlement Slope al-Rojoom* al-Khafaji al-Khutm
2100 2000	Late Umm an-Nar	Settlement Slope al-Rojoom* az-Zebah
1900 1800 1700	Early Wadi Sûq	Settlement Slope

Table 4.2: Bat Settlement Chronology; * – Tower sites without clear evidence of associated domestic occupation

4.2.3 Contextualizing Bat's Settlements

With the backdrop of Bat's regional setting, history of scholarship, and internal chronology established, we can now place the site into context as an archaeological settlement landscape. Within the broad spectrum of Umm an-Nar sites, Bat falls into the category of oasis settlement sites along with Hili, ʻAmlah, Bisyah, Khashbah, and Qumayra. As highlighted by Cleuziou (1997), due to their reliable availability of resources, these oases have consistently been utilized as centers of occupation since the earliest periods of human presence on the Oman Peninsula (cf. Magee 2014:47-86). It is therefore not surprising that at Bat we find evidence of continuous occupation from the Middle Neolithic to the present day (see **Section 6.3.1**). Yet, as an Umm an-Nar site, Bat's archaeological remains stand out as particularly valuable for providing unparalleled insight into the period's settlement tradition and social organization. The archaeology of the Umm an-Nar Period, particularly that of its settlements, is complicated by a number of factors. Most notable amongst these are: the scarcity of stratified settlement contexts; the rarity with which such settlements have been excavated; and the apparent tendency of Umm an-Nar occupation to shift in location over time within a given area. The Umm an-Nar settlement remains at Bat are thus exceptional in that they provide a well-defined internal site chronology, multiple windows of stratified settlement contexts, and numerous well-studied settlements through which to observe the development of Umm an-Nar society.

Yet even with its many strengths, it is important to acknowledge that our understanding of Bat's settlement history is far from perfect. Rather than detracting from the site's value as an Umm an-Nar settlement case study, recognition of Bat's archaeological limitations enables us to use the available materials to their best advantage. The history of archaeological research at Bat is the first potential source of bias. First, the identification of Umm an-Nar settlements at Bat has been contingent upon either their proximity to tower monuments, where excavation of the monument has inadvertently exposed portions of the settlement, or their visibility on the modern ground surface. This leaves the significant potential for further undiscovered settlement contexts to exist elsewhere on the Bat landscape. Second, the quality of preservation differs significantly between settlements. Those preserved at or just below the modern ground surface, such as al-Khutm and much of the Settlement Slope, have suffered from the damaging effects of exposure and erosion. In contrast, those embedded in the dense clay of the wadi plain, such as al-Khafaji and possibly al-Matariya, are prohibitively difficult to excavate to a desirable breadth of exposure. Therefore, when considering Bat's inter-settlement patterns it is necessary to account for the likelihood that certain information is more readily accessible at some locations than at others (i.e., broad architectural plans are available from sites preserved at surface level, while contextualized material culture is available from sites embedded in the wadi plain). These complementing data sets enable me to develop a well-rounded interpretation of Bat's settlement tradition and its development throughout the Umm an-Nar Period. In the section to follow, I discuss each of Bat's Umm an-Nar settlements in detail and highlight their most significant traits.

4.3 Chronological Development of Bat's Settlement Landscape

In order to demonstrate how Bat's settlement tradition developed over the course of the Umm an-Nar Period, I here present a detailed summary of the known occupational remains from each of the settlement's chronological sub-periods. I move through Bat's terrain in chronological stages, describing each of the settlements and their major occupational phases in turn. Key to the discussion are the settlement sites of al-Matariya, al-Khafaji, the Settlement Slope, and the slightly more distant sites of al-Khutm and az-

Zebah. Through this chronological description, I create a comprehensive overview of Bat's settlement remains and lay the foundations for the architectural and contextual analyses that will follow in subsequent chapters.[187]

4.3.1 Early Umm an-Nar

Of the various phases of Bat's settlement history, the Early Umm an-Nar (2800-2500 BCE) is the most difficult to reconstruct. As a whole, Bat's archaeological landscape provides us with only tantalizing hints of Early Umm an-Nar domestic activity. In order to grapple with this early period, we must begin by considering the larger contexts in which the possible traces of domestic settlement are found. Bat's Umm an-Nar settlement history therefore begins at the earliest instance of Bronze Age occupational activity so far identified at the site – the monumental tower of Matariya at the eastern extent of Bat's archaeological landscape (see Fig. 4.2). Although no contemporary residential structures or evidence of domestic activity have so far been found in association with the tower, Matariya merits a brief discussion as here we find the first examples of several trends that come to characterize Bat's settlement tradition.

Matariya's tower, notable for its early date and combination of stone and mudbrick building materials, is embedded in the alluvial plain of the Wadi Sharsah, just south of the entrenched wadi drainage channel. The 20 m wide tower is founded on an artificial mound composed of mudbrick, clay, and two stone retaining walls, all of which

[187] See **Chapter 5** for an analysis of the distribution of settlements across Bat's landscape, an interpretation of the organization of space within each settlement, and the social implications of both. See **Chapter 6** for a discussion of the Umm an-Nar house, household, and an architectural and chronological reconstruction of the excavated contexts at the Settlement Slope and al-Khafaji.

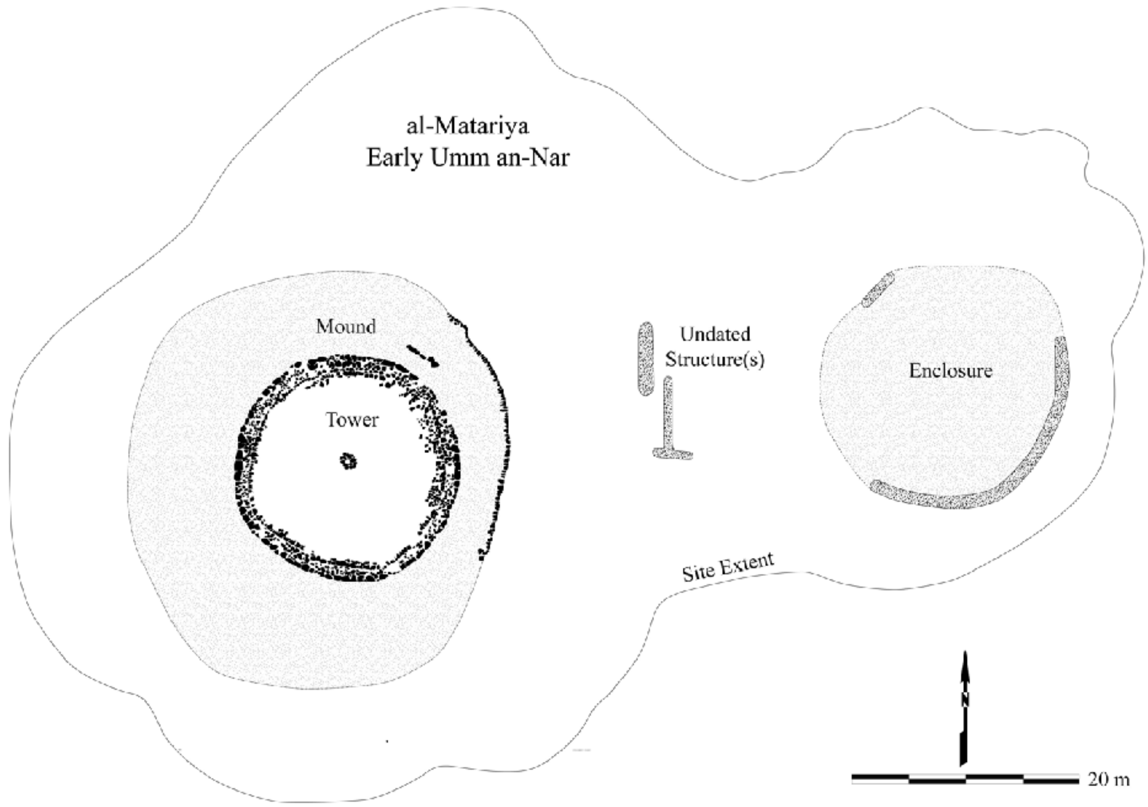

Fig. 4.2: Al-Matariya site plan. After Cable 2016a:68, Fig. 4.19; Friflelt 2002a:106, Fig. 3.

served to elevate the monument above the surrounding landscape.[188] As recently published by Charlotte Cable (2016a:49-82), the Matariya tower experienced several phases of use and construction beginning in the Late Hafit Period (ca. 2900-2800 BCE) and continuing into the Early Umm an-Nar (ca. 2600 BCE). Due to logistical constraints, Cable's excavations concentrated on the tower interior and its immediate surroundings. It is, therefore, possible (if not probable) for associated domestic remains to exist beyond the limits of excavation. Indeed, Frifelt identified evidence for food and craft production along with small-scale, fragmentary architecture dating to unspecified 'later periods' just

[188] Comparable man-made foundation mounds can be found at the nearby towers of al-Khafaji, possibly al-Rojoom, and at the site of Kalba 4 on the Horn of Oman (see Eddisford & Phillips 2009:116, Fig. 6a & 6b; see also Fig. 3.7 of this dissertation).

east of the tower (1989:10; 2002a:106).[189] While these later domestic remains must be treated with due caution, they may hark back to an Early Umm an-Nar predecessor where, for the first time, the Bat landscape featured a settled community connected to a tower monument.

The earliest direct evidence for Umm an-Nar occupation, scant though they may be, are found at the neighboring sites of the Settlement Slope and al-Khafaji. I first consider contexts at the Settlement Slope as radiocarbon analysis dates its initial phase to slightly earlier than that of its neighbor, al-Khafaji (see **Appendix A**). However, in all probability, both settlements originated at the approximate the same time.

The known Early Umm an-Nar occupation at the Settlement Slope concentrates at the northwestern end of a long, steep, limestone ridge[190] that parallels and forms the northern edge of the Wadi Sharsah's drainage channel. Later in the Umm an-Nar Period, the entire 500 m length of the hillside comes to be covered in architectural and material culture fragments. However, in the beginning of this period, activity on the Settlement Slope is first known from its lower northwestern end. On the lower slopes of the ridge line, we find an Early Umm an-Nar monumental stone tower (Site 1156) constructed

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[189] Located a short 37 m to the southeast and within easy eyeshot of the Matariya tower is the so-called 'Enclosure' – a 20 m wide, circular area surrounded buy a low stone wall (Frifelt 1989:10). When partially excavated by Frifelt, the Enclosure was found to contain several pits with evidence of communal food production. Frifelt also explored the area between the tower and the Enclosure, a space she identified as 'the Activity Area,' through a long test trench. The Activity Area earned its name to the presence of three fragmentary, rectilinear stone buildings and a large oven. Frifelt dated both the Enclosure and the Activity Area to an unspecified 'later period' (1989:5-6).

[190] The Settlement Slope ridge line reaches its peak at 40 m above the surrounding floodplain. Archaeological remains concentrate on the lower half of the hillside. It is also notable that a significant amount of sedimentation (in places over 3 m of accumulated sediment have been recorded) has occurred on the adjacent wadi plain since the Bronze Age (see below for further discussion). The Settlement Slope hillside, therefore, would have occupied a location of far greater visual prominence in the Bronze Age than it does today.

directly onto the limestone bedrock (see Fig. 4.3).[191] This elevated orientation on the ridge provides the tower with a natural vantage point. The first indication of occupational

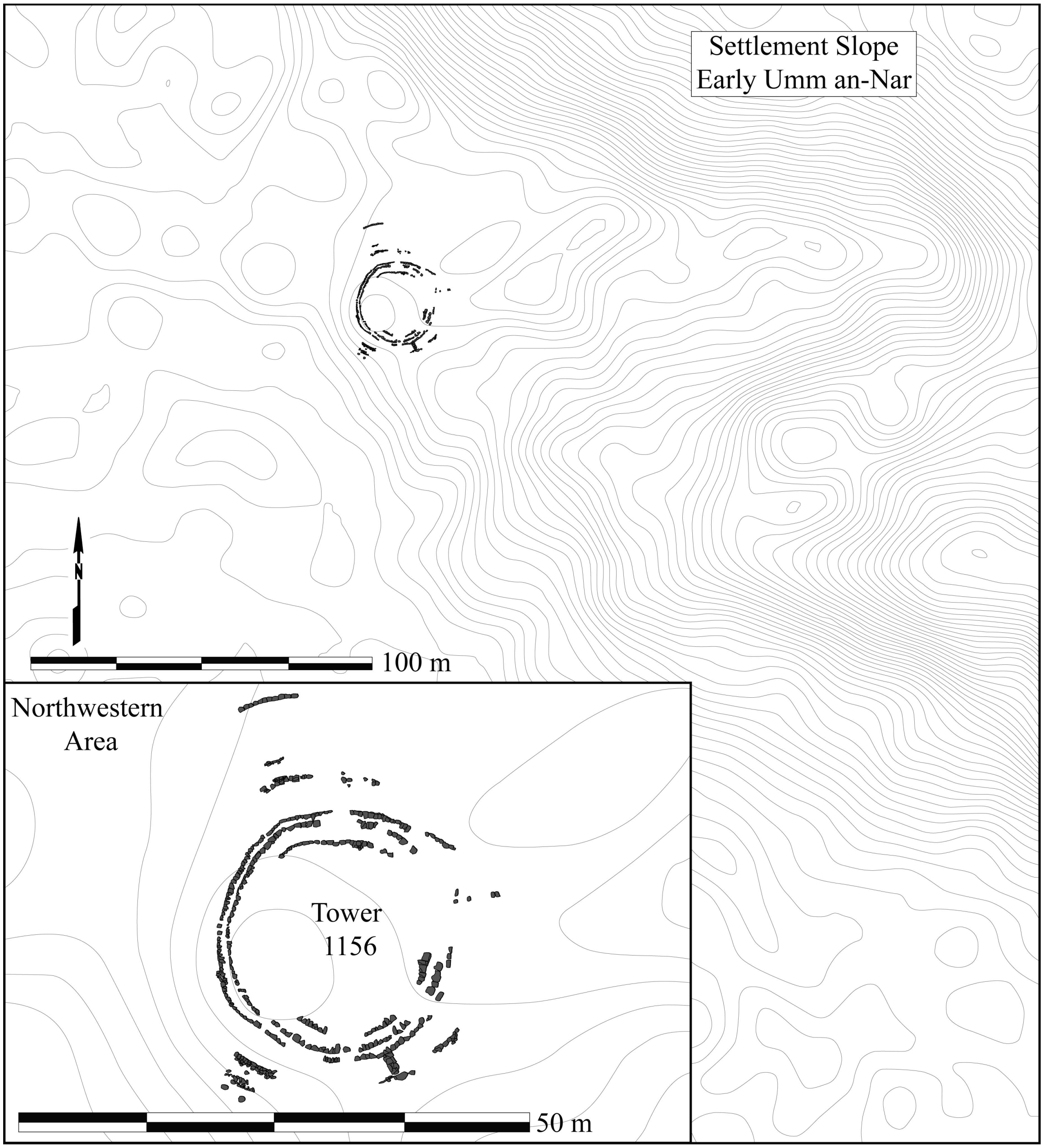

Fig. 4.3: Early Umm an-Nar Settlement Slope site plan. After Mortimer 2016:153, Fig. 6.38.

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191 The slightly irregular Settlement Slope tower is 20 m in diameter and was not at first counted among Bat's tower monuments (cf. Friefelt 1976:60, 63; 1985:101). Recent excavation by BAP, directed by Ann Mortimer, decisively place the Settlement Slope monument within the Umm an-Nar tower tradition (cf. Mortimer 2016; Possehl, Thornton, & Cable 2011; Thornton 2012).

activity at the Settlement Slope comes from just beyond the tower in the form of metallurgical craft production. Immediately surrounding the tower walls are a series of ring walls and ditches explored in detail by Anne Mortimer (2016:123-154).[192] In one such Early Umm an-Nar ditch to the southwest of the tower, Mortimer uncovered a collection of five fire pits containing evidence of copper smelting.[193] A sixth fire pit identified at the southern edge of the excavated area within this ditch suggests that the metallurgical production area continued throughout the feature (Mortimer 2016:138-9). Similar small-scale installations and smelting cast-off materials are known in relation to Umm an-Nar towers elsewhere on the Oman Peninsula, such as at Hili 8 (Cleuzion 1979:22), Kalba 4 (Eddisford & Phillips 2009:121), Bidya 2 (al-Tikriti 1989a:107-109), and Bisya (Orchard & Orchard 2008). In these cases, much like on the Settlement Slope, no domestic houses have yet been identified in association with the towers but the small-scale craft production suggests an occupational presence in the near vicinity. Additionally, the size of the crucible and known scale of the metallurgical activity at the Settlement Slope is comparable to or smaller than examples from Maysar and Umm an-Nar Island, where such craft production was taking place within the buildings there

[192] The tower is immediately ringed by a 2-2.5 m wide 'inner ditch' that is reinforced with internal revetment walls. Beyond this there is a possible 'outer ditch' dug into the bedrock, however the poor preservation of this feature makes it difficult to determine if it was intended as a second ditch feature associated with the tower or if it is a general leveling of this area of the site. For further discussion, see Mortimer 2016.

[193] An especially noteworthy find from one pit is a small crucible fragment with copper residue still adhering to its interior surface (Mortimer 2016:139).

interpreted as houses (cf. Weisgerber 1980; 1981; Friefelt 1995:92-99).[194] The Early Umm an-Nar metallurgical practices at the Settlement Slope thus seem to represent a small community level of production.

A short 10 m downhill to the west of the Settlement Slope tower is an area of significantly flatter terrain than elsewhere on the ridge. This level ground surface and its accumulated sediment has helped to protect the underlying archaeological remains from the erosion that has damaged the rest of the slope. Although sediment deflation has compressed the stratigraphy in this part of the site, the remains at the northwestern end of the Settlement Slope represent the longest known occupational sequence on the Bat landscape – from the Middle Neolithic through the Wadi Sûq.[195] Yet, despite such clear evidence of both earlier (Neolithic and Hafit) and later (Middle and Late Umm an-Nar) periods of occupation, the Early Umm an-Nar presence at the northwestern Settlement Slope remains indistinct. No secure contexts dating to the Early Umm an-Nar have been discovered in this area. However, black-on-red fine ware ceramics stylistically associated with the period have been found in areas of mixed stratigraphy. Such Early Umm an-Nar sherds occur in this area in far greater quantities than elsewhere along the slope.[196] While it is possible that they have eroded downhill from the Early Umm an-Nar contexts around

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[194] It is worth noting that the structures containing metallurgical installations and materials at both sites date to later in the Umm an-Nar Period – the domestic structures at Maysar 1 appear to date to the Late Umm an-Nar based on associated ceramic forms (Weisgerber 1980: Fig. 42, 45; 1981: Fig. 17; 1991: Fig. 11), while the 'house complex' at Umm an-Nar Island can be roughly dated from the Early Umm an-Nar through the Middle Umm an-Nar II (Friflet 1995:237-239).

[195] For a full description of the excavation results from the northwestern area of the Settlement Slope, see **Section 6.3**.

[196] As noted by Thornton and Ghazal, pottery of any sort remains rare in the Early Umm an-Nar, especially in settlement contexts. Early Umm an-Nar pottery is largely restricted to the fine black-on-red wares and sort-necked jars often associated with funerary contexts (2016:193-4).

the tower, the density in which these sherds are found and the established long history of occupation in this area suggest the likelihood of an Early Umm an-Nar occupational presence (see **Section 6.3**).

The last of Bat's potential known Early Umm an-Nar settlements, al-Khafaji, is located 250 m southwest of the Settlement Slope tower (see Fig. 4.4). While Khafaji was

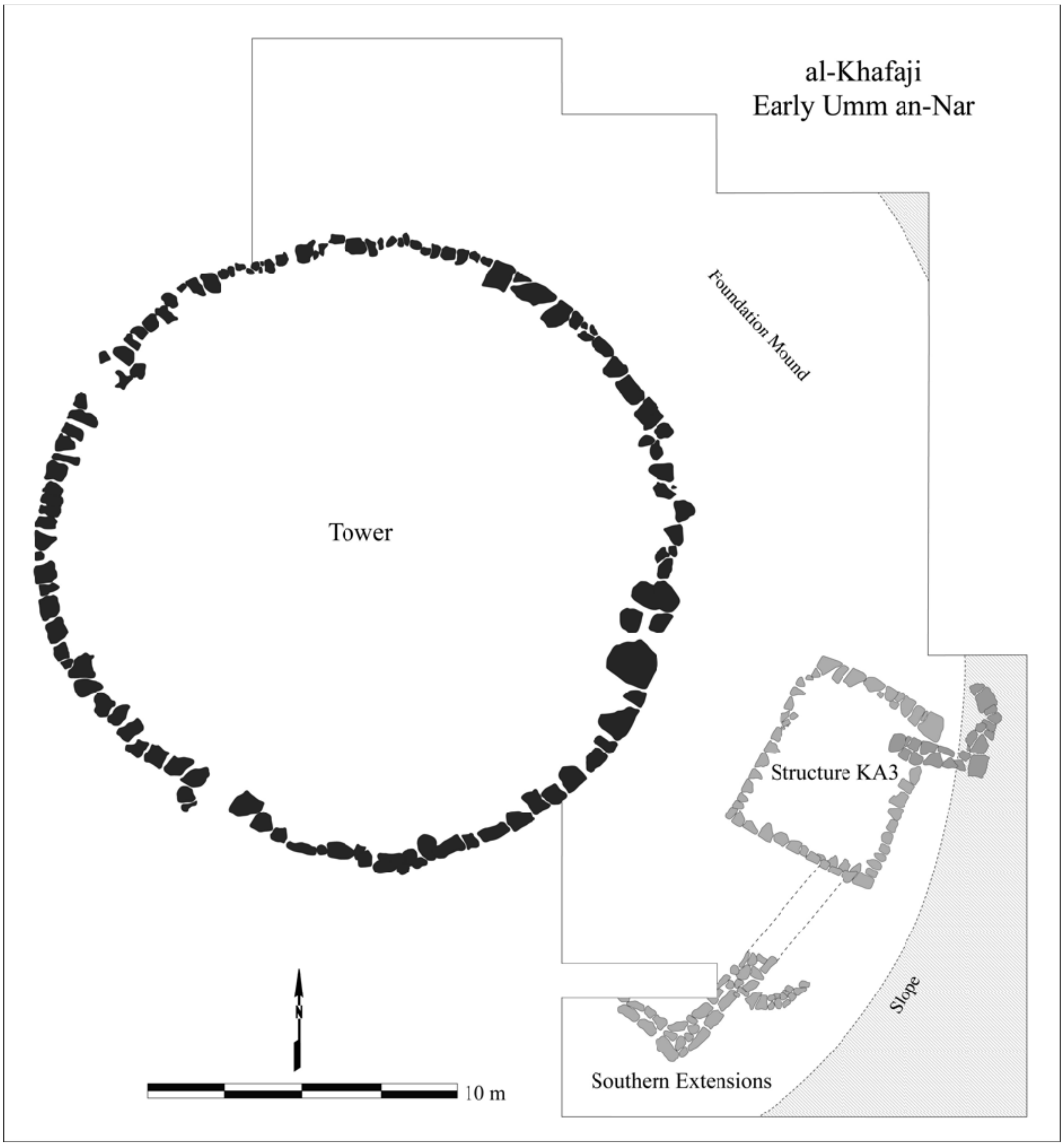

Fig. 4.4: Early Umm an-Nar al-Khafaji plan.

founded at the same time as, or slightly later than, the Early Umm an-Nar contexts on the Settlement Slope, in this early phase the site displays more parallels with Matariya than with its nearer neighbor. Similar to Matariya, Khafaji's remains are situated in the dense clay of the wadi's alluvial plain, just south of the drainage channel. Although it seems to be situated on the flat wadi plain, the 20-22 m wide Khafaji tower (built of massive, rough-hewn limestone blocks and preserved to a maximum height of 1.8 m) and its surrounding structures rest on an artificial clay mound that would have added a further 1.5 m or more to their height and prominence on the landscape.[197] Located southeast of the tower is a square (6.5x6.5 m) platform (Structure KA3) originally consisting of mudbrick resting on stone foundations that climb up the upper edge of the clay mound.[198] The surface of the platform appears to have been accessed via a large, curving stone ramp that runs over its northeastern corner and ends at the level at which the platform's original mudbrick superstructure would have stood (see Figs. 4.5 and 4.6). Insight for the possible functions behind this monumental feature can be found in a similar, more dramatically sloped platform that has recently been excavated at the nearby Middle Umm an-Nar tower of al-Khutm. Excavators of this platform interpret it as a monumental

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[197] The full height and extent of the Khafaji tower's clay foundation mound has not yet been defined. See **Section 6.4** for further discussion of the results of excavations at Khafaji.

[198] While mudbricks are preserved within the stone foundations of the platform Structure KA3, none were preserved atop the foundations. Nevertheless, the presence of a mudbrick superstructure in antiquity is indicated by the presence of the stone access ramp, which rises a further 70 cm above the top of the stone foundations.

A comparable platform feature can be found at Hili 8, in the Period II Building II. This structure is similarly disconnected from the neighboring tower (Building IV) and composed of a limestone foundation with a mudbrick superstructure and was gradually expanded throughout the Early and Middle Umm an-Nar periods. In its latest use phase (Period IIe), Building II is clearly associated with metallurgical craft production (cf. Cleuziou 1989a:68-70; see also Fig. 3.9 of this dissertation).

Fig. 4.5: Al-Khafaji platform ramp in profile, showing the original height of the platform's mudbrick superstructure. Photograph from north.

access ramp leading to the tower (Cattani *et al.* 2017:53-55).[199] Although Khafaji's platform does not provide as dramatic of an approach, the platform and its curving ramp may have served a similar purpose of granting access onto the monument's clay foundation mound.

Further to the south, a series of stone walls with unclear purposes (the Southern Extensions) extend from the platform's southeastern corner to the southwest. The space to the northwest of and within these walls has not yet been excavated to the level of

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[199] A ramp feature has also been identified at the Late Umm an-Nar tower of Maysar-25 (Weisgerber 1981:198-199). This ramp is constructed of packed mud within a limestone frame and abuts the northeastern side of the tower.

Fig. 4.6: Al-Khafaji platform ramp from north.

active use contexts (see Fig. 4.7).[200] South of the extension walls, in contrast, a clay and gravel surface with a small fire pit were identified level with the wall foundations and running up against an unusual, semicircular stone feature that abuts the southeastern face of the extension wall. A radiocarbon sample taken from this fire pit provided a date range

[200] Excavated contexts within this walled space consist of the undifferentiated clay characteristic of the wadi valley.

Fig. 4.7: Al-Khafaji Southern Extensions from east.

of 2700-2570 cal. BC (2-σ), which tentatively dates these features to the Early Umm an-Nar Period.

Yet, as at the Settlement Slope, there is little direct architectural or material evidence of Early Umm an-Nar domestic activity contemporary with Khafaji's monuments. The only material remains thus far discovered indicative of residential occupation are a collection of Early Umm an-Nar style ceramics found loose in the soil south and west of the platform and two small, ashy pits associated with a gravel surface that is level with the tower foundations (see **Sections 6.4.4** and **6.4.5**). Nevertheless, traces of Hafit Period activity below the tower,[201] and later Umm an-Nar domestic contexts immediately surrounding the monument, support the likelihood that Early Umm an-Nar domestic contexts are yet to be discovered in the wadi silts surrounding Khafaji's tower and mound.

Now having detailed the three probable Early Umm an-Nar settlements – al-Matariya, the Settlement Slope, and al-Khafaji – it is possible to consider emerging patterns in Bat's early occupational history. Each of these sites feature prominent tower monuments, both on the flat wadi plain and at the edge of the surrounding limestone hills. There is also fragmentary evidence of activity and material culture from areas in the general vicinity of all three tower monuments, but as of yet no Early Umm an-Nar domestic architecture has been identified at any of Bat's settlement sites. While the reasons behind this are necessarily conjectural, I tentatively suggest some potential scenarios. One possibility is that the occupational styles of the Early Umm an-Nar population at Bat were such that they would leave only the slightest trace in the archaeological record (i.e., temporary encampments or permanent structures built of ephemeral materials). Or, alternatively, the Early Umm an-Nar settlements were not situated as close to the tower monuments as archaeologists expect them to have been. The highest concentration of Early Umm an-Nar pottery so far found at Bat comes from the northwestern end of the Settlement Slope – at a distance of some 30-40 m from the

[201] For a detailed discussion of the Hafit Period materials below the Khafaji tower, see Thornton in Possehl, Thornton, & Cable 2009. See also: Thornton, Cable, & Possehl 2013.

tower. This may suggest that to find the Early Umm an-Nar settlements at each site, whatever its composition, we may need to look further afield than the areas immediately surrounding monumental towers.

4.3.2 Middle Umm an-Nar

During the Middle Umm an-Nar (2500-2200 BCE), Bat's occupational pattern becomes more visible on the archaeological landscape in the form of rectilinear architecture and the sparse remains of domestic-style activity near, and occasionally resting atop, the monumental towers. The occupations at the Settlement Slope and al-Khafaji into recognizable centers, while, at the same time, a new settlement is established at the slightly more distant site of al-Khutm.

Returning first to the Settlement Slope, there is a short hiatus in activity in the area of the tower during the Early-Middle Umm an-Nar transition. When activity resumes in the Middle Umm an-Nar, the earlier tower no longer functions as the centerpiece of the settlement. Instead, the tower monument is leveled, its surrounding ditches filled in with rubble, and the now-flat area is used as a foundation for a section of the new phase of settlement (see Fig. 4.8).[202] Although the reasons behind the Early Umm an-Nar tower's abandonment are unclear, the rectilinear Middle Umm an-Nar building(s) constructed on top of it reinforce the supposed conceptual link between such monuments and residential settlements.

Partially resting on the Settlement Slope's former tower are the foundations of one or more rectilinear buildings, Structure SS2 and several disarticulated wall fragments.

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[202] For a full discussion of the Settlement Slope tower and its phases of use, see Mortimer 2016:123-154.

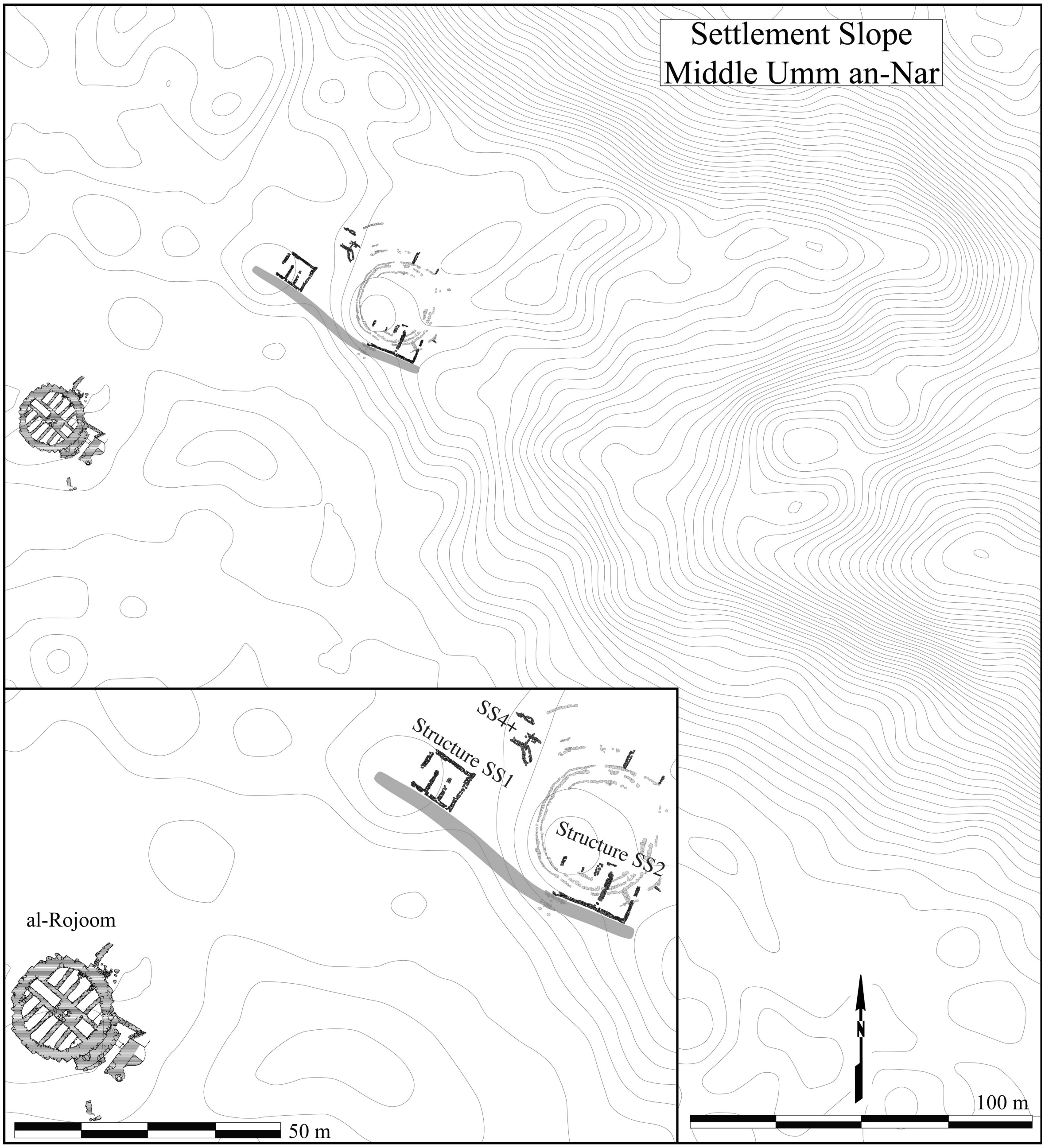

Fig. 4.8: Middle Umm an-Nar Settlement Slope site plan.

Although the Middle Umm an-Nar architecture in this area of the site is too fragmentary to ascertain a coherent settlement plan, the relatively intact Structure SS2 provides some insight. This Middle Umm an-Nar building and its neighboring wall fragments are the first instances of the dry-stone architectural style that comes to characterize Bat's settlement architecture for the remainder of the Umm an-Nar Period. The stone walls, or wall foundations, are composed of two rows of dove-tailed local limestone and measure between 50 and 80 cm in width. The interlocked dove-tail pattern creates a double-faced wall with little apparent mortar binding the stones together, thus the term 'dry-stone.'[203] With one notable exception in Structure SS2,[204] the rectilinear settlement architecture at Bat consists only of 2-3 courses of stone which likely served as foundations for a more ephemeral superstructure that has not survived, such as mudbrick, palm fronds, or a combination of the two. A clear rectangular (ca. 15x8 m) floor plan can be discerned for Structure SS2, especially in its well-preserved southeastern half where it sprawls over the underlying tower's southern edge. Within this frame are the fragmentary remains of three north-south walls that divide its interior space into 1.5-3 m wide units. Unfortunately, little material culture or evidence of activity was recovered from the building's interior that could indicate its function. Such materials were likely removed or destroyed by a later Wadi Sûq Period construction of a large rubble platform across the entire area once occupied by the Early Umm an-Nar tower and its surrounding features (Mortimer 2016:142-146).

Roughly 20 m northwest of and downhill from Structure SS2 are the more intact remains of the Middle Umm an-Nar Structure SS1 and a small collection of surrounding

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[203] See **Chapter 6** for a full description of this architectural style and its development over the course of the Umm an-Nar Period. See also Kerr 2015.

[204] Wall 115502, which forms the southern edge of Structure SS2, is preserved 5 stone courses in height. This unusually high stone foundations likely reflects the architecture compensating for the irregular topography of the Settlement Slope – the wall steps up the uneven hillside to create an level foundation for the southern end of the building. For further discussion on this topic and the architecture of Structure SS2 in general, see **Chapter 5**.

fire pits and living surfaces.[205] The architectural layout of the Middle Umm an-Nar Structure SS1 (ca. 9x7 m) is reminiscent of the slightly larger Structure SS2, with two (rather than three) north-south dividing walls creating a series of narrow (1.5-2.5 m wide) interior rooms. A beaten clay surface located in the building's northwestern corner features a small hearth that may represent the first in situ evidence of domestic activity so far identified at the site (see **Section 6.3.1**).[206] The presence of small-scale craft production and domestic-type remains within and surrounding Structure SS1, limited though they may be, supports the interpretation of this building as a Middle Umm an-Nar house.[207] These finds also suggest that in the Middle Umm an-Nar Period there was a continuation of the metallurgical practices noted in the Settlement Slope's Early Umm an-Nar occupation. The close proximity of the metallurgical and domestic activities in this area of the Settlement Slope both reinforces our previous supposition that the Early Umm an-Nar copper working near the tower was associated with a nearby settlement and links the Settlement Slope's Middle Umm an-Nar occupation to other settlements, such as

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[205] Excavation of the Settlement Slope's northwestern settlement contexts was carried out between 2013 and 2014, and was directed by Chris Thornton, Katherine Morgan, and myself. For a full description of the results of these excavations, see **Chapter 6**. See also the recent, unpublished master's thesis by Alex Kerr (2015) of Durham University.

[206] A radiocarbon date from this fire pit reinforces the building's Middle Umm an-Nar date – 2380-2415 cal. BC (2-σ). See **Appendix A**.

[207] See **Sections 6.3**, **6.4**, and **6.5** for an in depth discussion on the Umm an-Nar house at the Settlement Slope.

Maysar and Umm an-Nar Island,[208] where metallurgical activities appear to have been carried out within or just outside of domestic houses.

Two additional features must also be explored in order to fully illustrate the Settlement Slope's Middle Umm an-Nar spatial organization: (1) a gravel street or pathway connecting the the settlement's two clear buildings and (2) a newly constructed tower monument (Kasr al-Rojoom) just across the Wadi Sharsah's drainage channel. The street is a 2+ m wide, flattened linear feature, composed of packed stone and gravel, that runs along the southern face of both Structure SS1 in the northwest and Structure SS2 on the Settlement Slope tower platform. This street feature skirts the hillside's southern edge and connects the flat northwestern area to the steeper and more difficult to access stretches of the Settlement Slope to the east. The presence of the street in the site's Middle Umm an-Nar phase indicates that occupation on the Settlement Slope during this period was already centrally organized along this feature and likely extended further to the east than it has so far been possible to excavate. Small sections of possible cobbled streets or pathways are known from other settlements/monuments on the Bat landscape (e.g., on the Khafaji tower foundation mound and leading to the Khutm tower ramp; see **Section 6.4**; Cattoni *et al*. 2017). Additionally, the Late Umm an-Nar structures of Maysar-1 appear to be organized on either side of a 3 m wide, north-south street (Weisgerber 1980:79).

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[208] As noted above, the domestic structures containing metallurgical installations at Maysar 1 can be dated to the Late Umm an-Nar (Weisgerber 1980: Fig. 42, 45; 1981: Fig. 17; 1991: Fig. 11) and thus cannot be directly paralleled to the Middle Umm an-Nar community on the Settlement Slope. The Middle Umm an-Nar 'house complex' at Umm an-Nar Island, in contrast, is temporally comparable to the Settlement Slope but differs significantly in geographic situation. For further discussion on Bat's similarities with other significant Umm an-Nar sites, see **Section 4.4** below and **Chapter 6**.

Across the wadi channel, the Middle Umm an-Nar also featured the construction of a new monumental tower visually linked to the Settlement Slope (see Figs. 4.9 and 4.10). This monument, Kasr al-Rojoom, is situated on a prominence directly across the wadi channel from the Settlement Slope's original Early Umm an-Nar tower.[209] Rojoom is a far more elaborate structure than any of its predecessors on the Bat landscape.[210] It

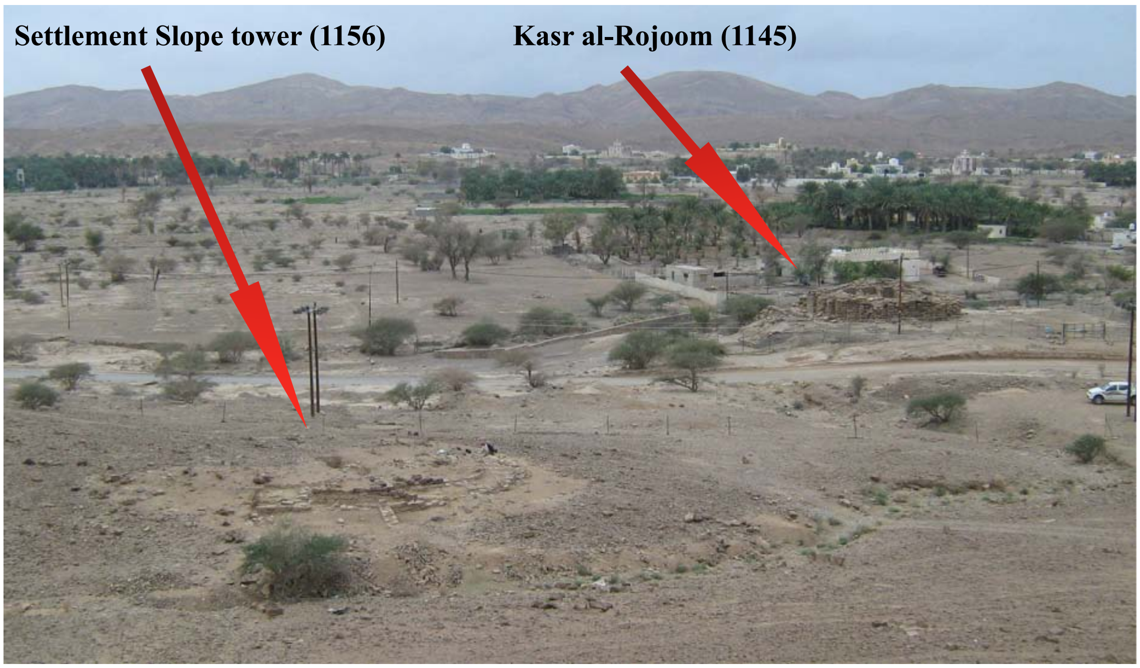

Fig. 4.9: Settlement Slope tower in the foreground (left) and Kasr al-Rojoom (right) in background to the southwest.

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[209] The dating of Kasr al-Rojoom relies on a combination of radiocarbon and relative dates based on the Bat ceramic typology. C14 samples from a hearth within the tower, beneath its interior walls, and from two hearths outside the tower date to the Umm an-Nar. However, due to the early date when these samples was run (cf. Frifelt 1989:104), the available date range is too wide to provide much specificity – 2700-2220 cal. BC (2-σ). The construction date proposed here, in the Middle Umm an-Nar, easily falls within this range and corresponds with the earliest stylistically identifiable ceramics found at Rojoom (Frifelt 1989:97, Fig. 5).

[210] The Rojoom tower and its surrounding area was excavated for several seasons by Frifelt between 1975 and 1978. The tower measures 20 m in diameter and is constructed of massive, roughly hewn, limestone blocks averaging 50x50x50 cm. The tower interior is characterized by a series of stone walls partitioning the circular space into rectangular spaces that were filled with mud and gravel to form an elevated (2.5 m high) platform and surround a central, stone lined well. Frifelt also identified series of exterior walls abutting the tower and a possible platform feature extending from the monument's southeastern face. Finds associated with the tower and its abutting features suggest a prolonged use, stretching from the later Middle Umm an-Nar through the Wadi Sûq. For further discussion on Kasr al-Rojoom, see Cable 2016b; Frifelt 1976; 1985.

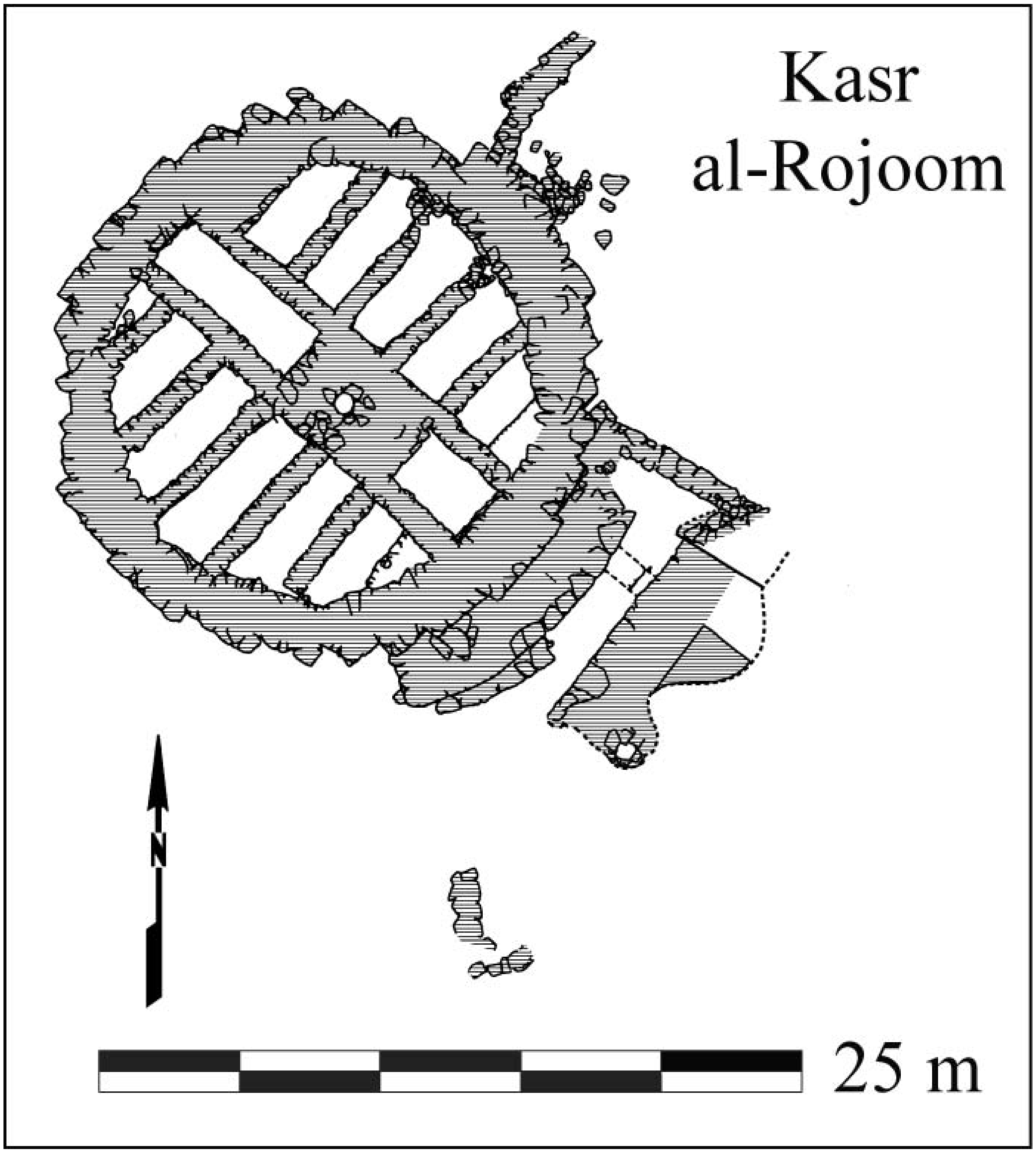

Fig. 4.10: Middle Umm an-Nar Kasr al-Rojoom plan. After Cable 2016b:171, Fig. 8.2.

features a dramatically crenelated exterior wall and stands at a recently restored height of 3+ m above the ground surface (see Fig. 4.11). A small collection of rectilinear wall fragments, hearths, and surfaces were excavated by Frifelt in the area east of the tower (1985:96), indicating the presence of a small occupation around the monument.[211] However, Rojoom's scale and location suggest that the new tower was visually, if not

[211] Based on the quantity of the tower's surrounding rock fall, Frifelt proposed that the tower originally reached a height of 5-6 m (1976; 1985:98).

Fig. 4.11: Kasr al-Rojoom from northeast (before restoration).

physically, connected to the Middle Umm an-Nar occupation on the Settlement Slope hillside.

Returning to Khafaji, the site's Middle Umm an-Nar phase witnesses the appearance of several rectilinear buildings bordering the tower (see Fig. 4.12). Three such structures have so far been excavated – one immediately to the north of the tower and two to the monument's northeast. All three are built on the same clay foundation mound as the tower and feature multiple phases of use and structural alteration (see **Section 6.4**). The northernmost Structure KA4 has a complicated history, with at least three structural phases, and an irregular floor plan. The construction of Structure KA4's earliest phase, represented by its exterior northern and southern walls, is of particular interest. The thickness of the walls (at 60-70 cm wide), and the dove-tailed limestone

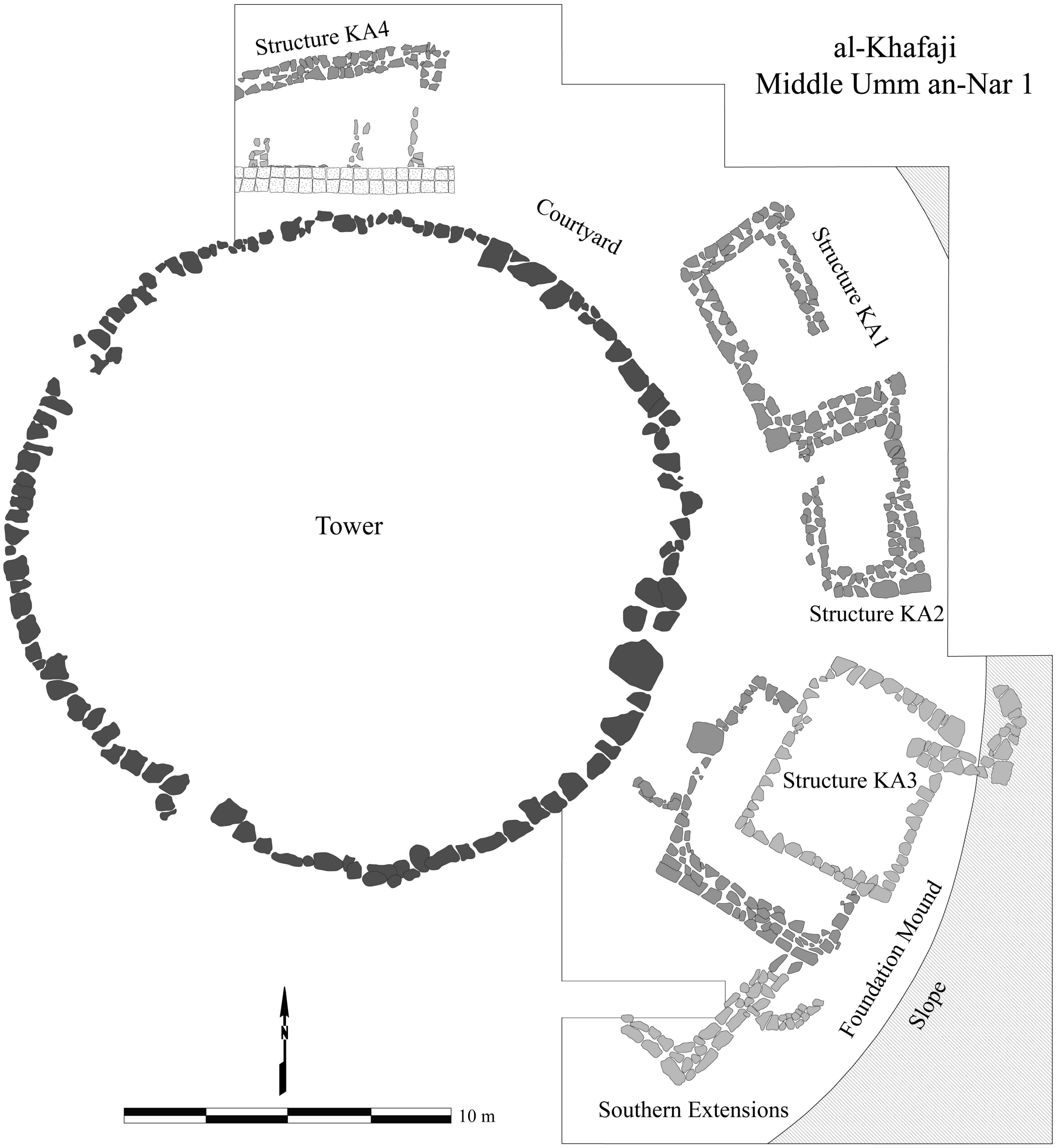

Fig. 4.12: Middle Umm an-Nar 1 al-Khafaji plan.

blocks that form their double-faced foundations, matches that of the contemporary rectilinear architecture at the Settlement Slope. Resting atop the southern wall foundations is a mudbrick superstructure, two bricks in width and in places five courses high. The extremely poor preservation of these bricks raises the likely possibility that many of Bat's structures with similar stone foundations also originally featured such mudbrick superstructures.[212] While direct evidence for domestic activity in this building is scarce, its many similarities with the structures on the Settlement Slope place them within the same functional category.

A short distance to the southeast of Structure KA4 are Khafaji's abutting Structures KA1 and KA2. The architectural composition of the northern Structure KA1 has more in common with that of Structure KA4 – featuring the same style 70 cm wide, dove-tailed, stone wall foundations – than with the irregular, coarsely assembled walls of Structure KA2. Both of these buildings demonstrate multiple interrelated phases in their construction histories, but contained no datable features or artifacts. The narrow Courtyard space between these buildings and the tower, however, contained just the opposite (see **Section 6.4.4**). Two superimposed, clay surfaces were uncovered in this space separated by a thick (20 cm) layer of grey-brown loamy sediment. Each clay surface was associated with a small hearth with ample charcoal, providing tight Middle Umm an-Nar radiocarbon dates[213] for the northern complex. The trash layer between the surfaces included a rich collection of Middle Umm an-Nar domestic and imported pottery[214] and grinding stones, suggesting that it likely represents the accumulated rubbish of food production and other domestic activity associated with Khafaji's surrounding structures (Thornton 2016:37).

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[212] The image that comes to mind is not dissimilar to the irregular, rectilinear, houses in Bat's historic (16th-20th century) mudbrick village.

[213] Charcoal collected from the upper hearth produced a radiocarbon date of 2460-2200 cal. BC (2-σ), while charcoal from the lower hearth produced a date of 2480-2280 ca. BC (2-σ). See **Appendix A**.

[214] Imported ceramics include several sherds of black-slipped jars and red-on-buff vessels from the Mature Harappan culture of the Indus Valley and a single example of a black-on-grey canister sherd from southeastern Iran (Thornton 2016:37).

In a second phase of Middle Umm an-Nar activity (see Fig. 4.13), the utilitarian outdoor space between Structures KA1, KA2, KA4, and the Khafaji tower is further defined by the addition of the unusual 'Connecting Wall.' This 1.8 m wide, linear feature is composed of two outer rows of stone, faced on the exterior to the northeast and

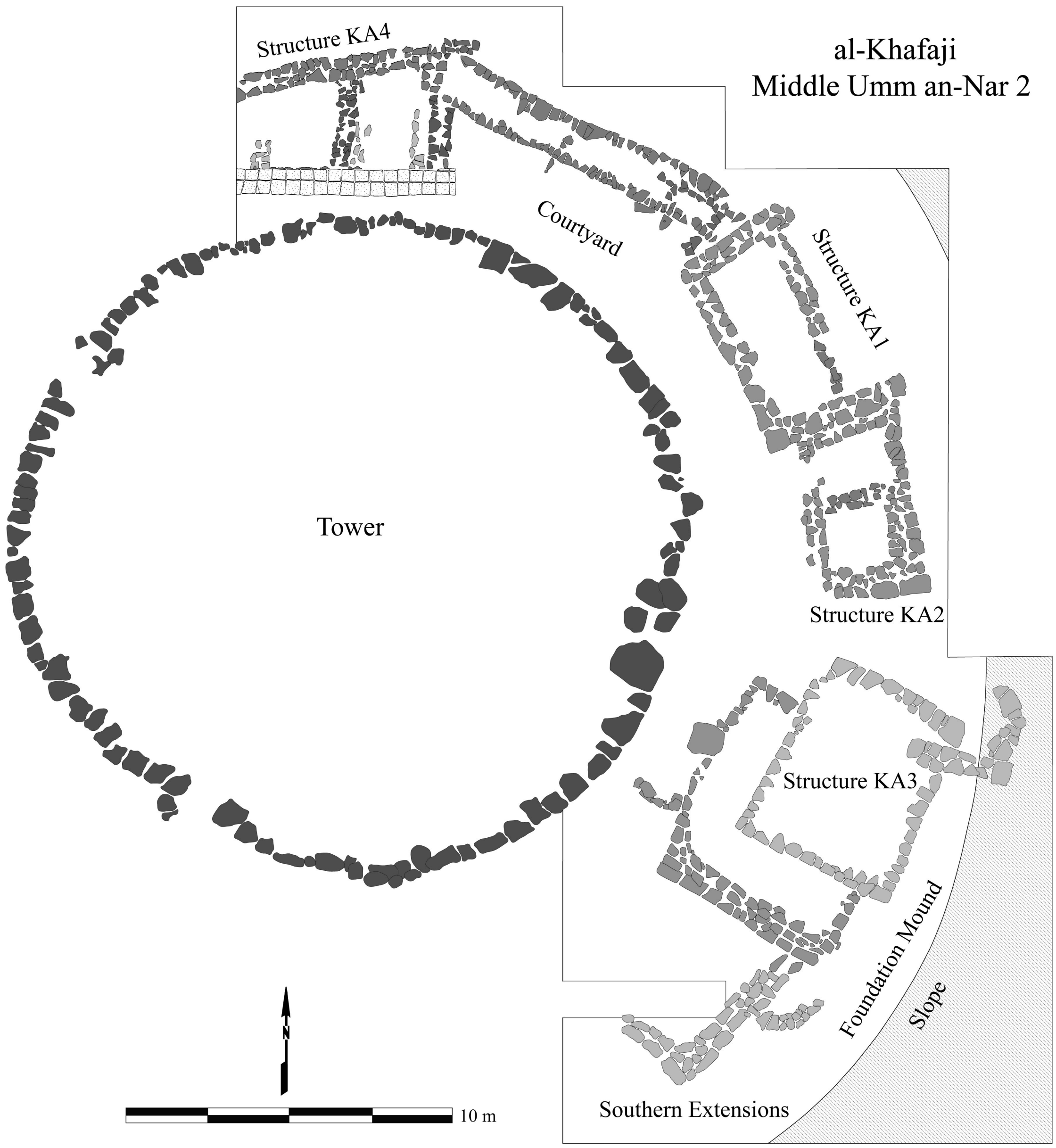

Fig. 4.13: Middle Umm an-Nar 2 al-Khafaji plan.

southwest, and an inner core of packed clay and stone rubble (see Fig. 4.14). No trace of a superstructure was recovered. The Connecting Wall stretches between the northern end of Structure KA1 and the eastern end of Structure KA4, enclosing the space where the domestic activity and rubbish accumulation were already taking place. With the possible exception of a fragmentary feature at the Settlement Slope,[215] the wall's construction style differs significantly from anything we have yet encountered in Bat's assorted settlements. The addition of the large-scale Connecting Wall can be read as indicating a gradual building up and increasing privacy for the area around the tower.

Fig. 4.14: Al-Khafaji Connecting Wall from southeast.

[215] See Wall 428/429, **Section 6.3.4**.

South of Khafaji's Structure KA2, the Early Umm an-Nar square platform (Structure KA3) is expanded with an L-shaped extension that adds a further 3 m of surface area to its southern and western ends. At the same time, the northern extent of the Southern Extension Wall is cut to make room for the enlarged platform and a patch of two stones is used to bridge the remaining gap between the two features. The space to the south of the Extension Wall continues to be used as an outdoor activity area and features a clay surface with a large, lay-lined oven (see **Section 6.4.5** for full discussion). A C14 sample from this oven dates the southern activity area to 2470-2310 cal. BC (2-σ; see **Appendix A**). Although no trace of architecture has yet been found in relation to this small patch of domestic-style activity, it does support the tentative hope that further settlement contexts are yet to be found beyond the limits of excavation and at greater distances from the tower. Taken as a whole, the settlement at Khafaji reflects a concentration of domestic structures and activity wrapping around the northeastern end of the tower and a more ephemeral activity zone south of the monumental contexts.

The third of Bat's three Middle Umm an-Nar settlements, the site of al-Khutm, is located 3 km to the northwest of Khafaji (see Fig. 4.15). Here the Wadi Sharsah joins the larger Wadi Hijr and opens onto a wide flood plain that is subdivided by a series of jagged limestone ridges.[216] Khutm is situated on the lower slopes of one such ridge and can be broken into two distinct zones of Umm an-Nar activity: a monumental tower located at the northwestern end of the bedrock ridge-line and a sprawling array of

[216] The crests of these ridge lines are marked with numerous Hafit Period tombs, while a smaller collection of Iron Age cist tombs are found on the hill slopes (Cable 2012). Iron Age tombs are located both atop the Khutm tower and in various locations in the settlement, where they present logistical complications for excavation.

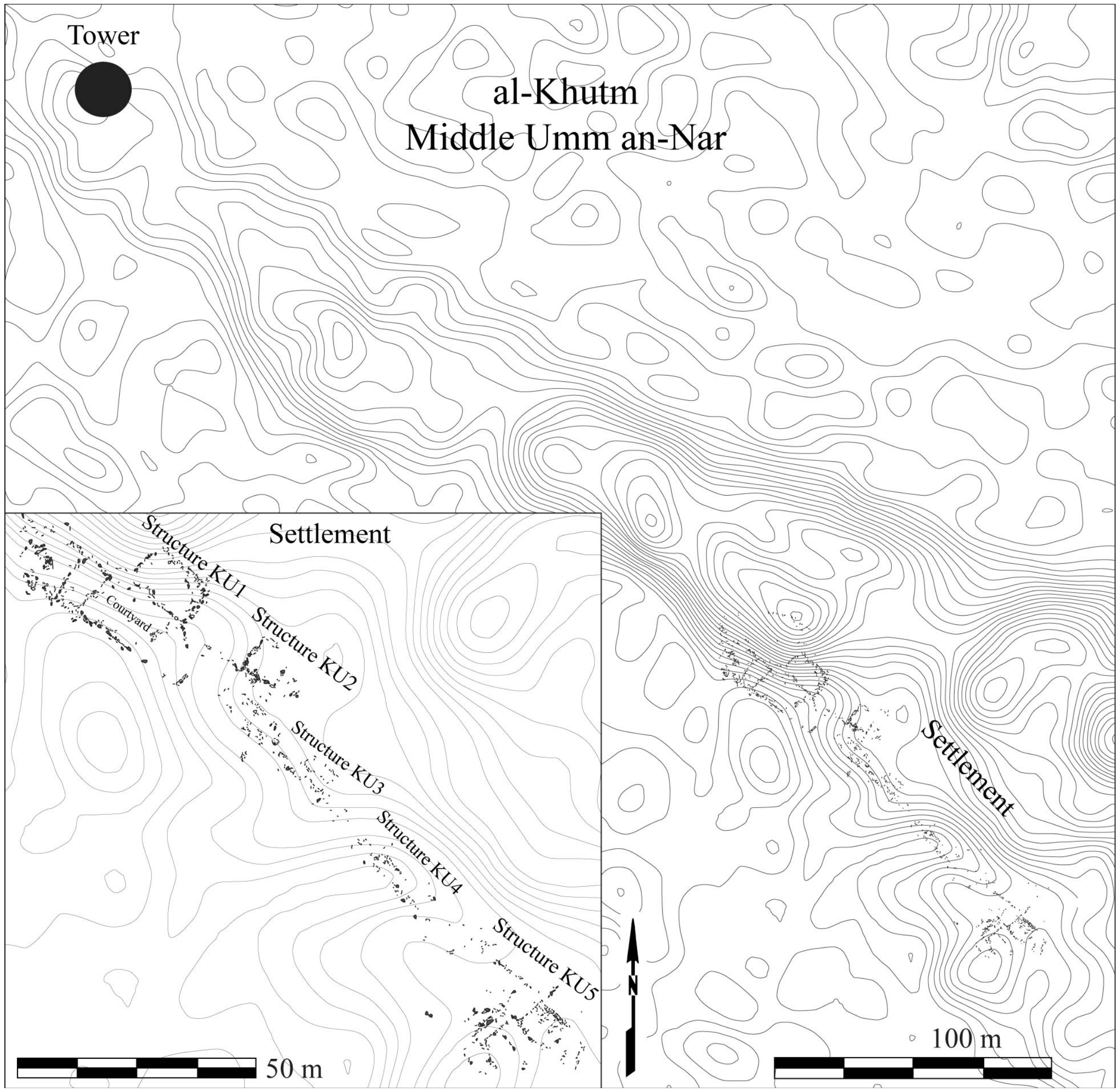

Fig. 4.15: Al-Khutm site plan.

rectilinear architecture spread across the ridge's southern face. Here there are several points of comparison with the Umm an-Nar settlement organization at Khafaji and especially the Settlement Slope. While the date of Khutm's tower is uncertain, the monument is comparable to the Settlement Slope's Early Umm an-Nar tower both in terms of its construction style and situation on the landscape.[217] Each tower is composed of large, local limestone blocks without mortar and both are founded on the raw bedrock of the hill slope, using the location's natural elevation as a vantage point. As mentioned above, a large, sloping platform abuts the tower's western face and is reminiscent of similar features at al-Khafaji, al-Rojoom, and the Husn al-Wardi (cf. Cattoni *et al.* 2017). However, in stark contrast to all other known settlements on the Bat landscape, there is no direct line of sight between Khutm's tower and its settlement on the far side of the ridge.

In Khutm's settlement zone, the site's rectilinear architecture is spread across a 175 m stretch of hillside, approximately 300 m southeast of the tower, which looks out over a flat expanse of wadi plain to the south.[218] It has not yet been possible to excavate the settlement contexts at Khutm, but the results of an intensive survey and surface collection provide an architectural plan and a tentative date of the site to the Middle Umm an-Nar.[219] Khutm's long hill rises 20 m above the surrounding terrain and has a gradient of 30 degrees at its summit that tapers to a gentler 5-10 degrees where it meets the plain. Khutm's settlement is characterized by a sprawling, linear chain of buildings just visible at surface level on the lower reaches of the slope that run parallel to the

[217] The Khutm tower was first excavated in 2009 by a team from the Omani Ministry of Heritage and Culture with the assistance of the BAP team and more recently by a team from the Italian Mission to Oman (cf. Cattoni *et al.* 2017). The monument measures 20 m in diameter and is encircled by at least one stone ring wall (cf. Possehl, Thornton, & Cable 2009; see also De Cardi *et al.* 1976; Cable 2012; 2016b).

[218] The Khutm settlement was discovered by Charlotte Cable during her 2011 survey of the greater Bat region (Cable 2012:325).

[219] The systematic survey was carried out between 2014 and 2015 using a 5x5 m grid overlaid onto an area 175 m NW/SE and 30 m NE/SW. With the dedicated help of Ruth Hatfield and Beth Velliky, we produced an architectural plan covering 100% of the gridded area. Additionally, a systematic surface collection covering 50% of the gridded area was carried out with the invaluable assistance of Kristen Hopper, Hannah Hunt, Stefan Smith, and Charlotte Cable.

hillside. Most notable are two large building complexes that are apparent at the northwestern and southeastern ends of the settlement. The northwestern Structure KU1 is defined by four abutting, large, rectangular spaces that may represent walled courtyards or independent but agglomerative buildings whose internal subdivisions are not visible (see Fig. 4.16). This trend towards agglomeration is even more evident in Structure KU5 at the southeastern end of the settlement. The Structure KU5 complex consists of two well-defined rectangular spaces, each with its own internal subdivisions that continue the pattern of 1.5-2.5 m wide rooms (see Fig. 4.17). Three further rooms with slightly

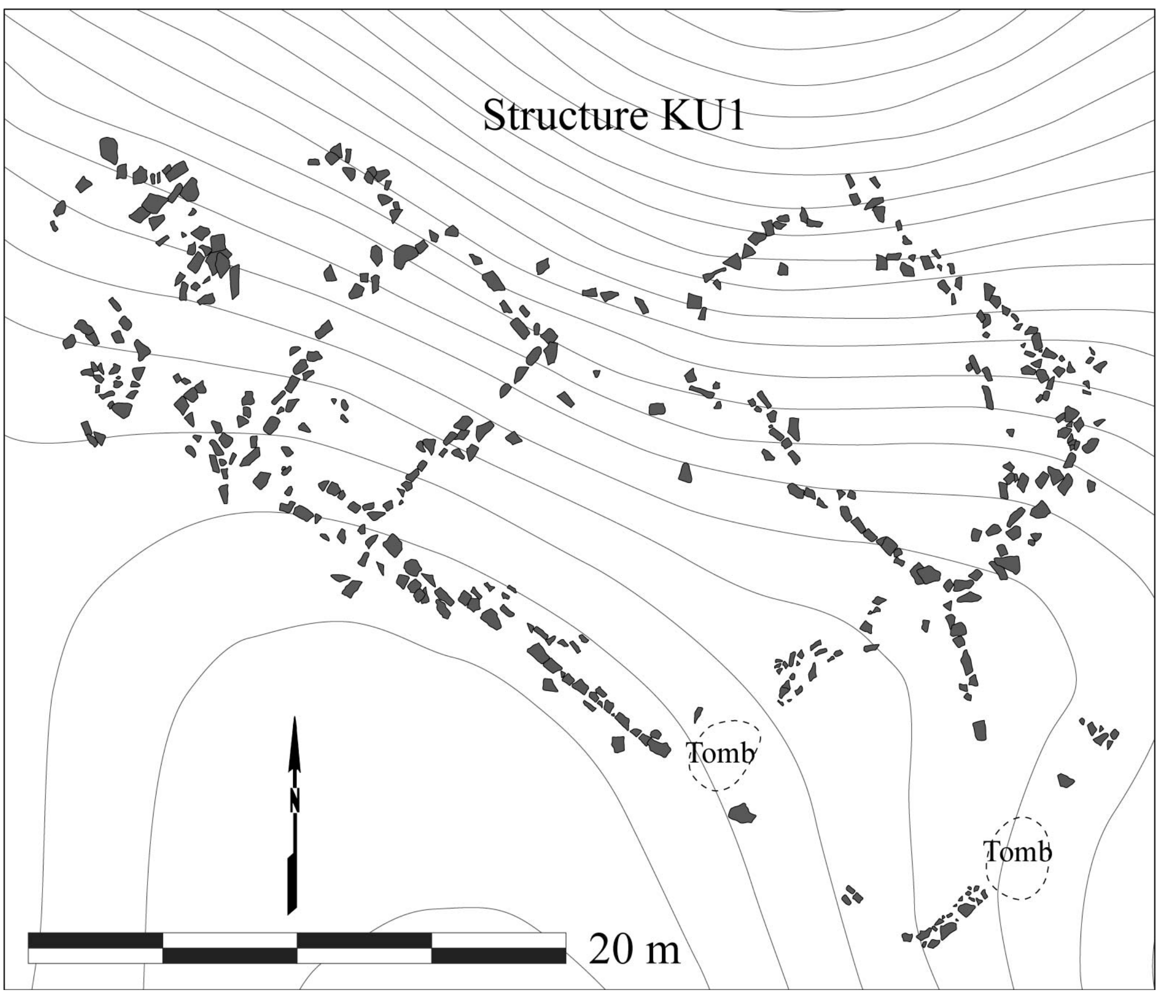

Fig. 4.16: Al-Khutm Structure KU1.

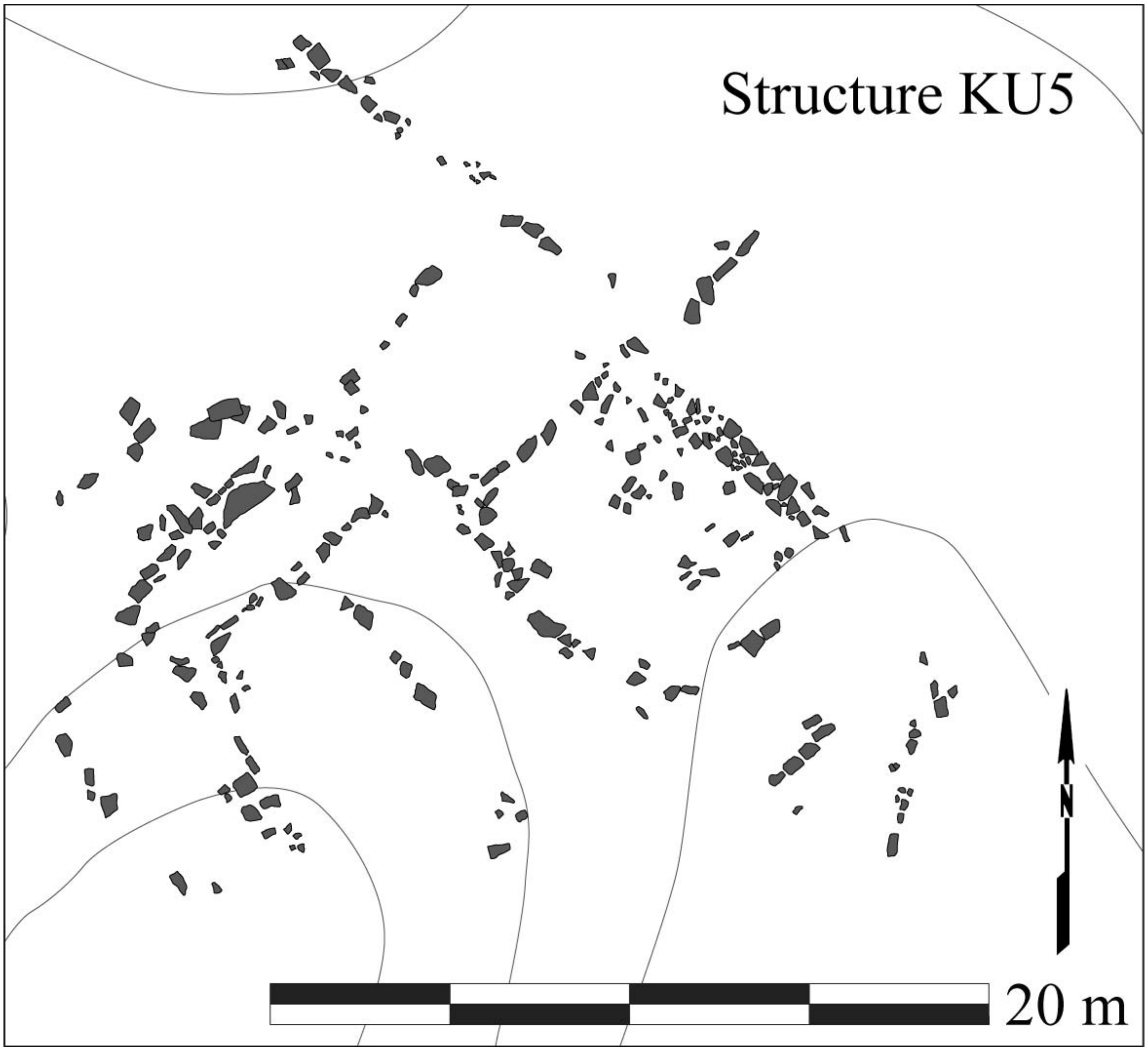

Fig. 4.17: Al-Khutm Structure KU5.

differing alignments abut the structure's northwestern and southwestern ends and are likely later additions to the complex. Between these two large complexes are at least three smaller and less structurally defined buildings (Structures KU2, KU3, and KU4), just visible from the surface.

Although al-Khutm is somewhat removed from the heart of the Bat landscape, the site features many of the same traits found in the Middle Umm an-Nar occupations of the Settlement Slope and al-Khafaji. Taken as a whole, Khutm's settlement is especially reminiscent of the Settlement Slope's contemporary occupation, especially through its orientation and organization on a hillside, its exposed state of preservation, and the distant location of its tower monument. However, in contrast to the contexts at the Settlement Slope, the close proximity of Khutm's visible building remains to the built-up wadi deposits at the foot of the hill suggests the likely possibility that further archaeological contexts exist to the south, where they are protected by the built-up silt. The finer details of al-Khutm's material culture, including the construction of its buildings and the assemblage of ceramics systematically collected from its ground surface, are also stylistically comparable to those found at both al-Khafaji and the Settlement Slope.[220] The settlement at al-Khutm can thus reasonably be considered a part of Bat's wider Middle Umm an-Nar community.

In summary, Bat's Middle Umm an-Nar occupation demonstrates both the diversity of settlement and monument form and that the two site types do not necessarily occur in as close proximity as is commonly assumed. Al-Khafaji clearly features a monumental tower quintessentially located in the center of a cluster of rectilinear architecture and evidence of domestic activity. However, this picture is complicated when the issue of how 'domestic' the rectilinear structures north and east of the tower likely were is considered. The scale of the buildings and their elevated position on the clay mound, just beyond the tower walls, raise unanswered questions of how representative these structures might be of the 'average' Umm an-Nar house and what

[220] A subset of the ceramic collection from Khutm's surface suggest that the site was also home to a later Iron Age occupation. These sherds may be eroded from a small collection of possible Iron Age tombs identified during the survey of the site.

other social functions they may have served. Khafaji can be contrasted with the configurations of the Settlement Slope and al-Khutm. At the Settlement Slope, the Middle Umm an-Nar community appears to be linked to the dramatic Kasr al-Rojoom monument across the wadi channel. However, the organization of these three components differs from the conventional Umm an-Nar settlement model. Rather than surrounding the Rojoom tower, the Settlement Slope's domestic architecture sprawls in a linear fashion along the hillside. This orientation results in only the northwestern-most settlement contexts having a clear visual connection with the Rojoom monument. The Settlement Slope features rectilinear buildings of various size, but there is limited evidence to decisively identify them as domestic in function (see **Sections 6.3** and **6.5** for full discussion). Rather, the most distinctive finds once again relate to small scale copper processing, continuing the trend established at the Settlement Slope in the Early Umm an-Nar Period. As the Middle Umm an-Nar occupation spread eastward along the Settlement Slope's hillside, the Rojoom tower became visually and physically more distant, while Khafaji's tower across the wadi grew closer and more visually prominent – blurring the conceptual lines between the two settlements. Finally, the agglomerative Khutm settlement has no visual connection to its associated tower monument. The distant location of Khutm's tower raises questions of the social and spatial relationships between these structural types. Taken together, the three sites (al-Khafaji, the Settlement Slope, and al-Khutm) challenge the social and spatial relationships between Umm an-Nar settlements and tower monuments as well as demonstrate the diversity that can be found in the period's settlement tradition even within a small region such as the Bat landscape.

4.3.3 Late Umm an-Nar

As the Middle Umm an-Nar Period comes to an end, the settlement pattern at Bat shifts once more. The towers and rectilinear structures at al-Khafaji and al-Khutm gradually fall out of use, although the presence of a small number of Late Umm an-Nar sherds in the Khutm surface collection suggests that its community did, to some degree, continue into the later third millennium. The clearest evidence for Late Umm an-Nar (2200-2000 BCE) occupation at Bat comes from the Settlement Slope. During this phase, fragments of rectilinear architecture associated with Late Umm an-Nar style pottery are found across the length of the hillside. While the social function played by Umm an-Nar towers remains uncertain, it can reasonably be assumed that the neighboring Kasr al-Rojoom continued to perform this role for the expanded community at the Settlement Slope. The monumentality and aesthetic elaborations of Rojoom taken in concurrence with the apparent scale of occupation on the Settlement Slope (the largest so far seen at Bat) imply that in the Late Umm an-Nar this area developed into the center of social activity on the Bat landscape.

Returning to the northwestern end of the Settlement Slope (see Fig. 4.18), the Late Umm an-Nar witnesses the earlier Structures SS1 and SS2 expand and the space between them begin to fill in with the addition of Structures SS3 and SS10. The Middle Umm an-Nar Structure SS2, resting partially atop the now long-abandoned tower, was extended to the east with the addition of a large wall abutting its southeastern corner. The scale of this wall and the width of the area it encloses appears to represent an exterior courtyard space. A later Wadi Sûq Period reuse of Structures SS1, SS3, and SS10 has

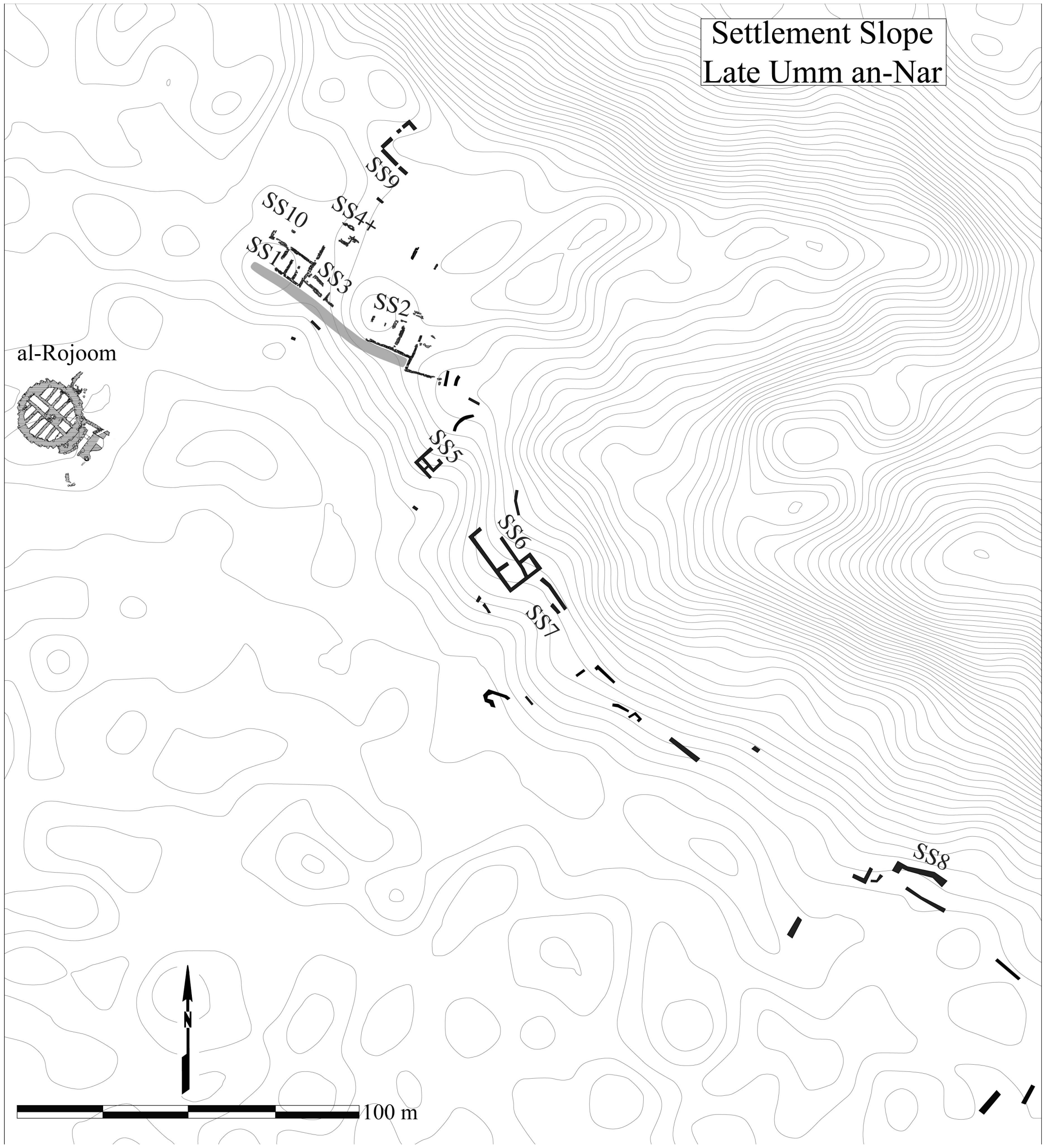

Fig. 4.18: Late Umm an-Nar Settlement Slope site plan.

obscured much of the evidence of their Late Umm an-Nar occupation. Nevertheless, Late Umm an-Nar style ceramics found within and near to the structures attest to their use in this period. A collection of copper pills and completed tools from the structure, although of uncertain date,[221] also indicate the continued importance of metallurgical craft production in this area of the settlement.

The remaining 200 m Settlement Slope hillside to the east of Structure SS2 has not yet been excavated[222] and is therefore only tentatively dated. Similar to al-Khutm's settlement, the rocky ground surface on this slope is littered with traces of rectilinear stone architecture and Middle-Late Umm an-Nar pottery eroding down the hillside.[223] Although this area has not been the subject of any substantial excavations or systematic survey, wall fragments clearly visible from the surface provide the careful observer with a rough idea of structural floor plans. In two instances (Structures SS5 and SS6), rough structural floor plans are visible broadly comparable to those of Structures SS1 and SS2 to the west. When first studied by Frifelt, she interpreted these two buildings as houses built on platform foundations that step up the hillside in order to create more usable living space (1985:99). While there is little material culture from secure contexts to support or refute her interpretation of Structures SS5 and SS6 (cf. Frifelt 1985), the Umm an-Nar ceramics and grinding stones that litter the surface of the slope do suggest that substantial domestic activity took place on the Settlement Slope hillside.

While the Settlement Slope appears to have dominated the Late Umm an-Nar settlement landscape in the heart of Bat, a number of smaller settlements also existed on

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[221] The preservation and use history of Structure SS1 make it difficult to differentiate between its Late Umm an-Nar and Wadi Sûq occupational phases. For a more detailed discussion of these contexts and the associated artifacts, see **Section 6.3**.

[222] Excepting a test trench that Frifelt excavated through the largest visible structure on the hill (site 1155; SS6). Frifelt concluded that the building's interior contexts were heavily damaged by erosion and did not explore the area further (1985:99).

[223] For examples of Middle and Late Umm an-Nar ceramics found on the Settlement Slope hillside, see Thornton & Ghazal 2016: Fig. 9.6, especially Sherds A, C, & K.

the periphery of the site's interaction zone.[224] Of these, the site known in the most detail is the settlement of az-Zebah, located 7 km to the northwest of Bat in the Wadi as-Shawi'ay (see Figs. 4.19 and 4.20).[225] Zebah has recently been the subject of survey and excavation by the German Mission to Oman (Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014) and provides valuable comparisons to the Late Umm an-Nar contexts found on the Settlement Slope.

Foremost among the traits that set Zebah apart from Bat and other known Umm an-Nar settlements in the Omani interior is its apparent lack of a tower monument or communal tomb. Similar to al-Khafaji, Zebah is situated on the flat wadi plain rather than on an elevated hillside, as at the Settlement Slope and al-Khutm. However, in contrast to Khafaji, sediment has not aggregated around Zebah's remains, leaving the white stone building foundations clearly visible on the backdrop of the dark wadi silt (see Fig. 4.21). While the outlines of at least eight rectilinear building complexes can be seen, no associated monument is apparent. One possible explanation is that, rather that constructing a tower, the inhabitants of Zebah modified a natural rocky prominence in the white limestone hills just west of the settlement to serve in place of a man-made monument (Weisgerber 2007a).

Zebah's settlement remains, which are made up of eight identifiable compounds and a number of fragmentary walls, cluster into two (i.e., east and west) or three (i.e.,

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[224] The interaction between this Umm an-Nar settlement network is the subject of a dissertation by Eli Dollarhide of New York University (Dollarhide *forthcoming*).

[225] Az-Zebah was first reported to the Omani Ministry of Heritage and Culture by BAP in 2009 and was excavated by the German Mission to Oman, led by Conrad Schmidt and Stephanie Döpper, from 2012 to 2014 (cf. Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014; Thornton & Schmidt 2015).

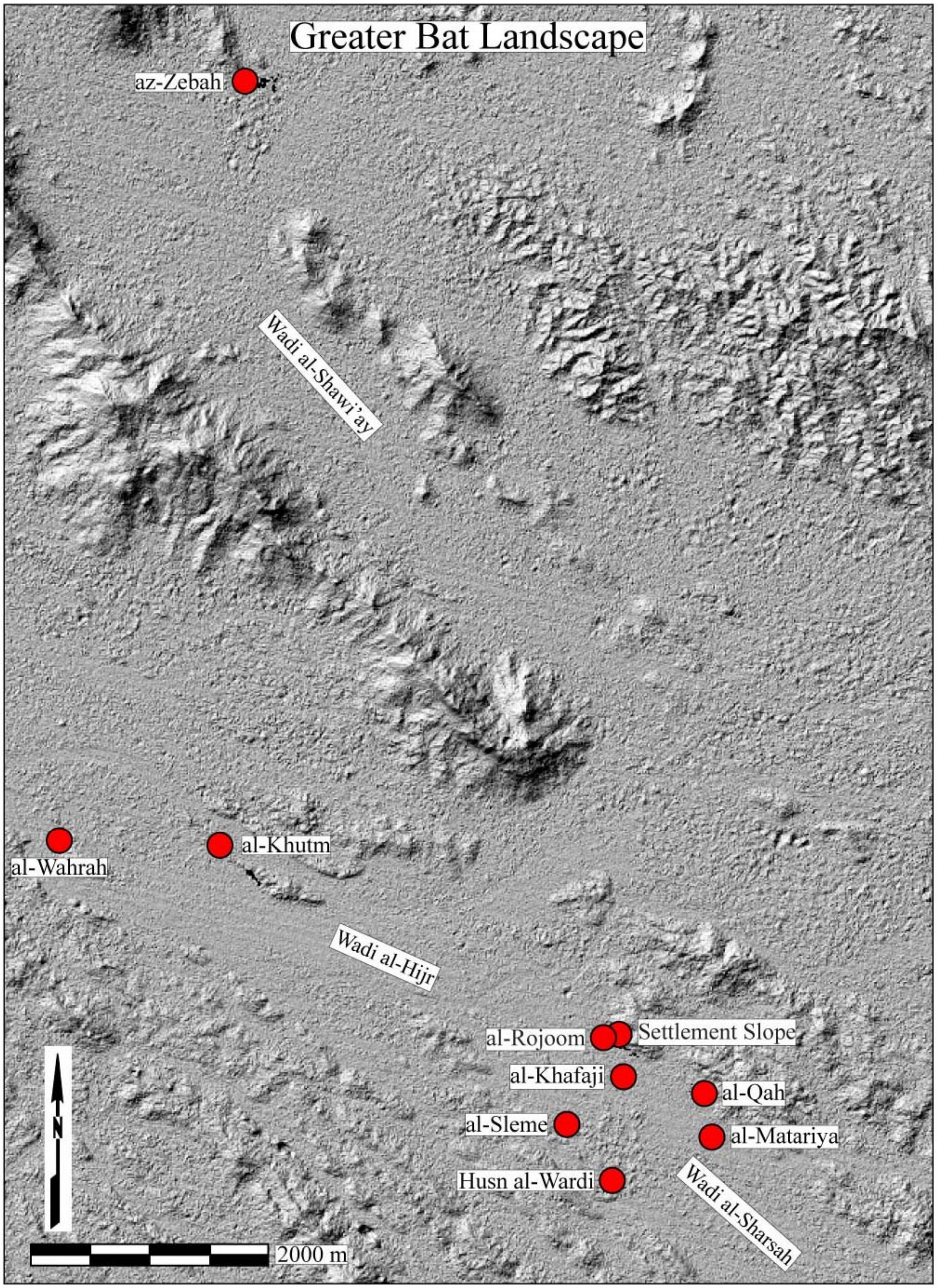

Fig. 4.19: Map of the greater Bat landscape.

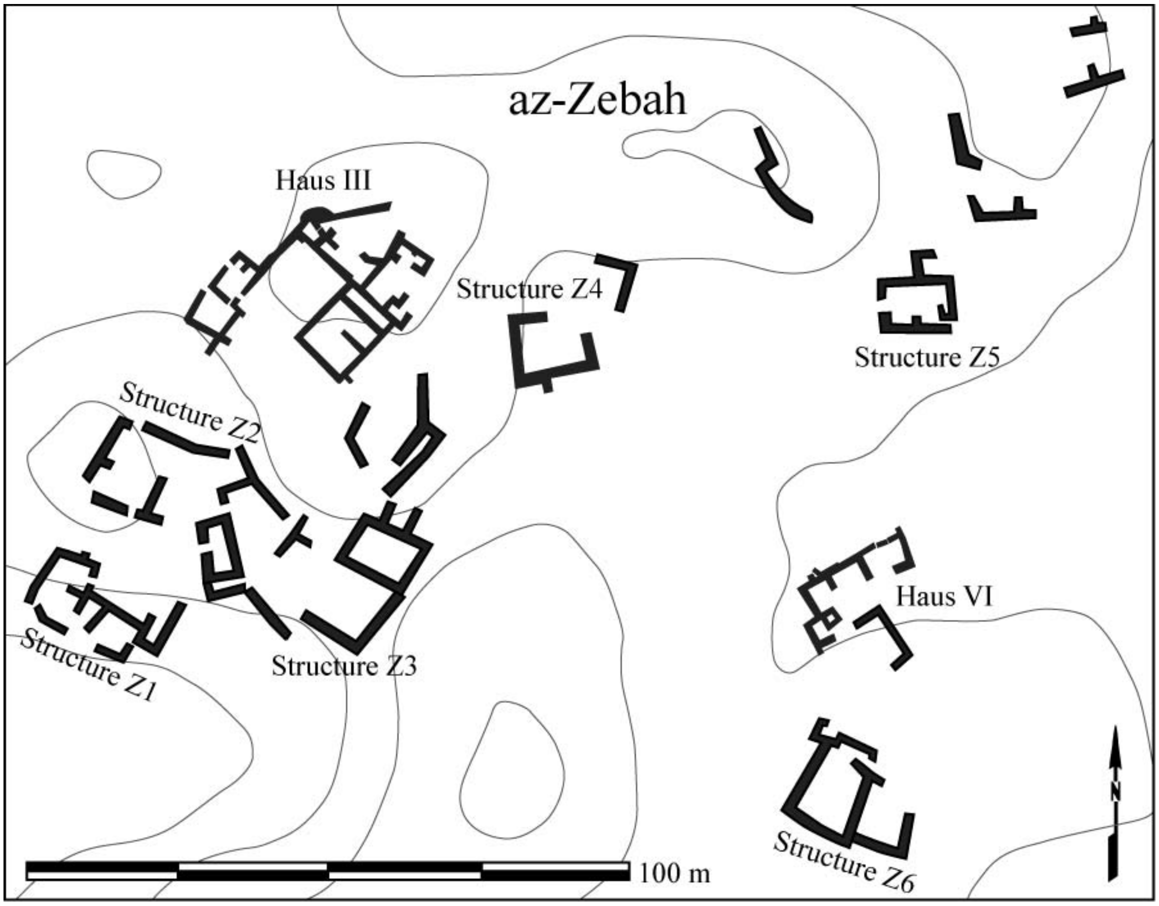

Fig. 4.20: Late Umm an-Nar az-Zebah site plan.

northeast, southeast, and west) zones or neighborhoods on the wadi plain. The construction style used in these building is comparable to that found in all of Bat's Umm an-Nar settlements. Dove-tailed limestone blocks form the double-faced wall foundations that likely once supported a now lost superstructure.[226] Excavations within two of Zebah's structures (House III and House IV), carried out by Stephanie Döpper and Conrad Schmidt, showed them to be agglomerative complexes built around large courtyard spaces. Within the courtyards, Döpper and Schmidt uncovered a surplus of hearths, storage jars, and evidence of food preparation (2014:69-78; Schmidt & Döpper

[226] Döpper and Schmidt suggest the stone foundations may have supported temporary tent structures that could have been erected or disassembled as need (2014:214).

Fig. 4.21: Az-Zebah from the west.

2014:215-216). Stylistic qualities of the storage jars as well as radiocarbon samples from the excavated hearths both support the late-Middle or Late Umm an-Nar date (2200 BCE) of Zebah's occupation (Döpper & Schmidt 2014:69, Abb. 23). The scale of Zebah's courtyard compounds and the density of evidence for domestic activity within them significantly outstrips that of the known buildings on the Settlement Slope. Such differences possibly reflect varying lifestyles between the Umm an-Nar settlements situated on wadi plains as opposed to hillsides (see **Section 5.4**).[227] The interpretation proposed by Schmit and Döpper paints the courtyards as temporary encampment space for a semi-nomadic, pastoralist portion of the site's population (2014:215-216).

[227] The interpretation proposed by Döpper and Schmidt paints the courtyard spaces within Zebah's rectilinear compounds as temporary encampment spaces for a semi-nomadic pastoral portion of Zebah's population (2014:215-216). See **Section 5.4** for further discussion on the lifestyles suggested by Bat's settlement layouts and placements on the landscape.

As the Late Umm an-Nar Period comes to a close, the majority of occupation on the Settlement Slope – especially that on the steep southeastern hillside – fades out. Similarly, there is little to suggest that the occupation at Zebah continued beyond the Late Umm an-Nar Period. A small Wadi Sûq community takes up residence at the flat northwestern end of the Settlement Slope, but this minor occupations is only a shadow of its Umm an-Nar predecessors.[228]

Based on the currency available data, the Late Umm an-Nar settlement pattern at Bat is thus characterized by the growth of the community on the Settlement Slope and the abandonment of other several other settlements, such as Khafaji and Khutm. However, I do not mean to suggest that all of Bat's Late Umm an-Nar population resided on the Settlement Slope. The southern Umm an-Nar towers at al-Sleme and beneath the Husn al-Wardi were conceivably constructed in and/or were active during the Late Umm an-Nar. Additionally, as Nasser al-Jahwari and Derek Kennet found in the Wadi Andam and as demonstrated by Bat's near neighbor az-Zebah (al-Jahwari & Kennet 2010; Schmidt & Döpper 2014; Schmidt & Döpper 2014), it is quite possible that other Umm an-Nar settlements exist on the Bat landscape without tower monuments to mark their locations.

4.3.4 Summary

This more refined picture of Bat's Umm an-Nar occupation, made possible by Thornton and Ghazal's chronology (2016), brings to light subtle changes in development

[228] A chronological sequence of the Umm an-Nar and Wadi Sûq architecture in the northwestern Settlement Slope has recently been compiled by Alex Kerr in his unpublished master's thesis from Durham University (2016).

of the site's settlement tradition over the course of the period.[229] Through such a diachronic perspective, it is apparent that Bat's settlement history is one of gradual growth and shifting nodes of activity, rather than of a single large settlement. The expected model of an Umm an-Nar settlement, wherein each settlement consists of a central tower monument with surrounding domestic houses and nearby tombs, is roughly borne out by Bat's occupational centers, especially during the Middle Umm an-Nar. However, variations from this model are found in each of Bat's major occupational sub-phases.

The Early Umm an-Nar Period witnesses the establishment of monumental towers both in the low hills (at the Settlement Slope) and on the wadi plain (at al-Matariya and al-Khafaji).[230] While nothing that can reasonably be interpreted as an Early Umm an-Nar house has yet been uncovered, trace evidence of activity in the general vicinity of these early towers support the idea that a settlement or residential area must be located nearby. The Middle Umm an-Nar at Bat featured a diversification of settlement organization and movement away from a direct tower/settlement correlation. The closest relationship between domestic and monumental contexts is found at al-Khafaji, where a dense concentration of domestic architecture and activity is located immediately outside the tower. At the Settlement Slope and al-Khutm, in contrast, the Middle Umm an-Nar residential activity takes place at some distance from and, in the case of al-Khutm, out of

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[229] It should be noted that even within Bat's Umm an-Nar sub-periods there is ample room for chronological improvement.

[230] In each instance where Early Umm an-Nar towers are found on the wadi plain (i.e., Kasr al-Matariya and Kasr al-Khafaji), the monuments were given artificial prominence on the landscape by being constructed on artificial clay mounds.

sight of the tower monuments. Yet, the Middle Umm an-Nar rectilinear structures and material culture remain notably consistent across these diverse settlements, suggesting little variation in identity despite the differences in settlement organization. Finally, in the Late Umm an-Nar we see a concentration of Bat's identified occupational activity into one large community on the Settlement Slope, while the settlements at al-Khafaji and al-Khutm are abandoned and more distant sites such as az-Zebah are established. The elaborate Kasr al-Rojoom monument, located just across the wadi channel from the Settlement Slope, emphasizes the significance of this community to Bat's Late Umm an-Nar landscape.[231]

4.4 Conclusions

The observations presented in this chapter of Bat's development as an Umm an-Nar settlement landscape have the potential to inform both how Umm an-Nar settlements are identified elsewhere on the Oman Peninsula and how such settlements are used to understand the development of Umm an-Nar society. Rather than static entities, Umm an-Nar settlements and the forms they take reflect the society who built them. As the scale and organization of Bat's Umm an-Nar settlements matured over time, so too did the scale and complexity of its society. As the Early Umm an-Nar Period opens, the tower monuments represent fixed points of occupation or social activity, but not necessarily the locations of fully formed settlements. By the Middle Umm an-Nar, this

[231] Although the construction of the al-Rojoom tower dates to the Middle Umm an-Nar, the commanding structure would have remained a powerful visual monument into the Late Umm an-Nar and beyond (see **Section 5.2** for further discussion). Further research is necessary to determine if the tower continued to be used and maintained in the Late Umm an-Nar Period.

pattern solidifies with both monuments and permanent settlements established on the landscape. The locations of the settlements are often linked to tower monuments but are not entirely dependent upon them – as seen at Khutm and the Middle Umm an-Nar occupation at the Settlement Slope. Finally, in the Late Umm an-Nar the most dramatic of Bat's towers, Kasr al-Rojoom, is connected with the largest and longest-lived settlement on the ancient landscape at the Settlement Slope. While it is possible, if not probable, that in all of these periods settlement was also taking place on areas of the Bat landscape without tower monuments to mark their location, the site's history of scholarship has so far limited available knowledge to those directly linked to towers.

Finally, it must be noted that this diachronic description and interpretation is based on only the sample of Bat's archaeological materials that BAP has discovered. In all likelihood, further settlements are yet to be uncovered at Bat, especially in the largely unexplored southern half of the landscape. For example, the contexts around the massive Kasr al-Sleme and the Umm an-Nar tower located beneath the 16th century AD Husn al-Wardi in Bat's modern date palm grove and mudbrick village have yet to be examined. Discovery of additional settlements in this promising area[232] or elsewhere could easily re-write our understanding of Bat's settlement landscape once again.

[232] Modern activity in this southern portion of Bat's landscape has revealed a substantial accumulation of wadi deposits, which may protect undiscovered archaeological remains.

CHAPTER 5:

BAT'S UMM AN-NAR SETTLEMENT AND SOCIETY

5.1 Introduction

In the previous chapter, we considered how Bat's settlement landscape developed over the course of the Umm an-Nar Period. Yet simply recognizing the existence of sub-phases within the site's Early Bronze Age occupation does little to clarify the lifestyles and social organization of the ancient peoples who lived there. In order to shed light onto such issues, we must consider how Bat's Umm an-Nar sites structured and were structured by the people who made them (Bourdieu 1990; Giddens 1984).[233] The question now before us is how the spatial organization of those settlements, collectively and individually, can be used to understand the corresponding Umm an-Nar social complexity and organization. In the sections that follow, I consider Bat's Umm an-Nar settlement sites from two complementary perspectives: the distribution of settlements across the landscape (**Section 5.3**) and the structural organization within each of those settlements (**Section 5.4**). Using supporting evidence from other excavated Early Bronze Age settlements on the Oman Peninsula and the ethnographic record, I offer an interpretation of Umm an-Nar society at Bat, and more tentatively for the ancient culture as a whole, that recognizes the existence of a socially connected network of settlements in the Bat heartland and the formation of sub-groups within the population.

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[233] See **Section 2.2.1a** for further discussion.

The foundation for the spatial analyses carried out in this chapter is a geo-rectified digital model and database (or Geographic Information System – GIS) of Bat's landscape and individual sites. This GIS database incorporates a digital elevation model (DEM) of the greater Bat landscape with BAP records and architectural plans.[234] The DEM provides a topographic resolution of 2.5 m,[235] allowing sufficient detail to consider how the varied terrain of the Wadi al-Sharsah and Wadi al-Hijr contributed to the spatial organization and experience of Bat's ancient settlements and monuments.[236] By geo-referencing BAP survey and excavation data onto this DEM, I was able to construct a rectified topographic model of Bat's Umm an-Nar landscape that can be used for spatial queries and calculations.[237] The ArcGIS platform further enables me to consider Bat's landscape from a multi-scalar perspective that is more revealing than the fixed perspective of conventional paper maps. In the following sections, I rely on the Bat GIS to calculate the visual, spatial, and structural characteristics of the site's settlements, which in turn form the foundation of my interpretation of the site's Umm an-Nar society.

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[234] The GIS model used in this dissertation was created through ArcGIS 10 software. Calculations refer to the Universal Transverse Mercator (UTM) Zone 40 coordinate reference from the World Geodetic System 1984 (WGS84) datum.

[235] The DEM is generated from satellite imagery collected by the Japan Aerospace Exploration Agency (JAXA)'s launch of the DAICHI Advanced Land Observing Satellite (ALOS) in 2006-2011, generously provided to me by BAP. The imagery was collected using a panchromatic radiometer – the Panchromatic Remote-sensing Instrument for Stereo Mapping (PRISM) – designed specifically to produce accurate digital surface models (JAXA 2012).

[236] The DEM of the Bat landscape, generated from the JAXA PRISM imagery, suffered some minor distortions in the tri-stereo extraction of the elevation data. These distortions are visible in the form of diagonal (northwest-southeast) banding on elevation images. In order to minimize the effects of the distortion on the analyses presented in this chapter, I ran the DEM through a 7x7 low-pass filter (found in the Focal Statistics tool in the ArcGIS 3D Spatial Analyst toolkit). With this filter I was able to improve the clarity of the DEM, however I was unable to completely remove the distortion.

[237] The GIS of Bat's settlement landscape is composed of layers of spatial information, including: the visual satellite image; the digital elevation data; and the architectural plans created during field research. BAP excavation results and architectural plans are recorded through the use of a Sokia total station, providing millimeter accuracy, and refer back to fixed datums on the landscape.

5.2 Umm an-Nar Settlements and Social Complexity

Before beginning the spatial analyses of Bat's Umm an-Nar remains, we must first establish the theoretical connection between settlement organization, both collectively and individually, and social complexity. As a society grows in size and socioeconomic diversity, the rules governing the social, economic, and political behaviors of its members necessarily become more complex. Physical indicators of those rules and behaviors in the material record allow archaeologists to asses the form of an ancient society's social organization and its degree of complexity (cf. Banning 2011; Earle 1997; Flannery 1998; Flannery & Marcus 2012; Kent 1990; Schloen 2001). As the primary stage on which daily socioeconomic activities and interactions are played out, settlements are key sources of information in any such study (cf. Ashmore 2005; Flannery 1972; 2002; Horne 1994; Kamp 1987; 1993; Kramer 1979; Rapoport 1982; Ross & Steadman 2010; Steadman 1996; 2000; 2015; see also **Section 2.2**).[238]

The Umm an-Nar society of the Oman Peninsula is generally understood as having had a pre-state level of complexity with a kin-based, undifferentiated social structure (Cleuziou 2002; 2003; 2007; 2009; Cleuziou & Tosi 2007; al-Jahwari 2008:329; Lancaster & Lancaster 1992; Potts 2008; 2009:32; Rouse & Weeks 2011).[239] However,

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[238] Thomas Gieryn credits buildings with "[stabilizing] social life. They give structure to social institutions, durability to social networks, persistence to behavior patterns. What we build solidifies society against time and its incessant forces for change" (2002:35). Buildings, thus, offer archaeologists unparalleled potential for accessing ancient social, political, and economic structures as well as for glimpsing social agency and development.

[239] An alternative interpretation which views southeastern Arabia as developing into a secondary state to the more complex Ur III state in Mesopotamia (cf. During-Caspers 1989; Edens 1992; Reade 2008) has been widely refuted (cf. Cleuziou 2002; 2009; Cleuziou & Tosi 2007; Magee 2014:119; Potts 1993a).

this interpretation is derived primarily from the large, communal tombs[240] that characterize the period rather than from its settlements (see **Chapter 3** for further discussion).[241] The well-populated archaeological landscape at Bat, which features a structurally and temporally diverse sample of settlement remains, is a prime case study through which to refine this profile of Umm an-Nar society. As detailed in **Chapter 3**, Umm an-Nar settlements are broadly characterized as being composed of three architectural features: one or more circular tower monuments, a collection of rectilinear architecture, and one or more nearby communal tombs (cf. Cleuziou 2003:144; Cleuziou & Tosi 2007:139-148; Magee 2014:101). Yet, relatively few sites discussed as Umm an-Nar 'settlements' feature all three components (e.g., Amlah, Bat, Bisyah, Ghoryeen, Khashbah, and Maysar; cf. de Cardi *et al* 1976; Thornton *et al.* 2016; al-Jahwari & Kennet 2010; Weisgerber 1980; 1981). Instead, the term 'settlement' is often loosely applied to a wide range of sites that include towers without associated settlement architecture (Cleuziou 1982; 1989a; Eddisford & Phillips 2009; Potts 1990b; al-Tikriti 1989a), clusters of rectilinear architecture without associated towers (Azzarà 2009; 2015; Cleuziou & Tosi 2000; de Cardi 1977; de Cardi *et al*. 1976; Frifelt 1995), what appear to be outdoor activity areas (de Cardi *et al*. 1976; al-Jahwari 2008; al-Jahwari & Kennet 2010; Phillips 2007; al-Tikriti 1985a), or even simple pottery scatters and/or shell middens (de Cardi 1997; al-Jahwari 2008; al-Jahwari & Kennet 2008; 2010; Phillips 1997; Vogt 1994). Given the functional definition of a settlement as the location where a

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240 These tombs can contain hundreds of interments with no indication of social differentiation between tomb members (cf. Cleuziou & Tosi 2007:132; Gregoricka 2011; Magee 2014:120-122; McSweeny et al. 2008; Potts 2000).

241 Exceptions to this generalization are discussed in this section below and in **Chapter 3**.

group of people live on permanent or semi-permanent (e.g., seasonal) basis,[242] carry out their daily tasks, process resources, and interact as part of a society (see **Section 1.2**), I suggest that the term is best applied to Umm an-Nar sites with evidence of such community- and household-level activity.[243] In the analyses that follow, I consider the locations on Bat's landscape with evidence for prolonged Umm an-Nar occupation and some amount of domestic activity to be settlements (see also **Chapter 4**).

Further complicating the discussion of how to identify and interpret Umm an-Nar settlements are the large oasis sites of the Omani interior, which are known to feature as many as seven monumental towers, hundreds of tombs, and numerous clusters of rectilinear (presumably settlement) architecture. Interpretations of such sites (e.g., Hili, ʻAmlah, Bisyah, Khashbah, and Bat) and the relationships between their component monuments and settlements vary and have at times been then subject of significant debate (cf. Orchard 2000; Orchard & Stanger 1994; 1999; Potts 1997). It is possible that during the Umm an-Nar Period these sites functioned as collections of independent Umm an-Nar hamlets, each centered on their own tower monument and all utilizing the locally available oasis resources. Indeed, this interpretation is in some ways supported by the

[242] The question of whether Umm an-Nar populations were wholly sedentary or if they followed a pattern of seasonal mobility continues to be a matter of debate amongst archaeologists of the Oman Peninsula (cf. Berthoud & Cleuziou 1983; Cleuziou & Tosi 2000; 2007; Gregoricka 2011; 2013; al-Jahwari 2009; Potts 1990b; 2001; Smith 2001; al-Tikriti 1985a; Uerpmann 2001; Uerpmann & Uerpmann 1994). Due to the near negligible quantity of archaeobotanical or zoological remains so far recovered from excavation at Bat (cf. Tengberg 2016), it is not yet possible to make firm conclusions on the nature of Bat's occupation. However, based on the investment of labor that would have been necessary to construct and maintain the known Umm an-Nar structures at Bat, I tentatively propose that the site was occupied year round by at least some of the population. Furthermore, regardless of the seasonality of the population, when in residence the physical structure of the settlements would have formed the stage for the Umm an-Nar social interaction.

[243] Settlements are, by nature, the stage for a wide variety of activities – domestic, ritual, economic, public, and private. This multi-functional character defies overly specific material definitions (see **Section 2.2** for further discussion).

pattern observed in the previous chapter (see **Chapter 4**) of settlement activity shifting in location on the Bat landscape over the course of the Umm an-Nar Period. Until the chronology of an oasis site with multiple centers of occupation is established, the possibility cannot be ruled out that what appears in the archaeological record as multiple neighboring settlements may actually be a single settlement that shifted in location over time. In contrast, the assortment of contemporaneously occupied settlements and monuments distributed across Bat and other oasis zones may have functioned as neighborhoods of large but disbursed Umm an-Nar towns (cf. Cleuziou 1996; 2002; 2009; Cleuziou & Tosi 2007; Frifelt 1976; 1985; 2002a; Orchard 2000; see also M. Smith 2010). Favoring the latter interpretation, Nasr al-Jahwari and Derek Kennet have recently suggested viewing such 'multi-towered' sites as the highest tier of a three tiered settlement hierarchy that emerged during the Umm an-Nar Period (cf. al-Jahwari & Kennet).[244]

On the wide Umm an-Nar settlement landscape, Bat may be the largest known example of these oasis sites, with seven monumental towers located in the site's center alone. While it has already been established that Bat's monuments and settlements fell into and out of use throughout the Umm an-Nar Period, more than one tower and settlement appear to have been active at the site during each of the period's major sub-phases (see **Chapter 4**). Additionally, the differing structural composition of these

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[244] Al-Jahwari and Kennet's proposed settlement tiers consist of: (1) sites featuring multiple tower monuments, tombs, and significant evidence of associated occupation as at Hili, Bisyah, Khashbah, and Bat; (2) sites featuring a single tower, few tombs, and some evidence of associated occupation as at Maysar, Amlah 2, and al-Ghoryeen; and (3) sites characterized as "agricultural villages" without monuments but featuring e idence of an occupational presences, as identified by al-Jahwari in his survey of the Wadi Andam (al-Jahwari & Kennet 2010:168-170).

settlements suggests that their occupants may have followed correspondingly differing lifestyles and contributed to different aspects of the site's Umm an-Nar economy (Phillips 2007:6).[245] These traits make Bat a prime subject through which to consider the question of whether it is appropriate to characterize the site as a single, large, multi-towered community or if it (and other multi-towered sites) should rather be considered as a collection of independent communities located in the same general oasis area. In order to address this issue, I consider the visual connections between the contemporary sites on Bat's landscape as representative of their possible social connections (cf. Ingold 2000; 2001; Thomas 1993; Tilley 1994; see **Section 5.3**). In light of that evaluation, I offer a reinterpretation of Bat's settlement landscape and its implications for broader reconstructions of Umm an-Nar social complexity.

Yet, in order to determine the social organization of the Umm an-Nar communities who occupied these sites, we must narrow our focus and consider the spatial organization found within the individual settlements. A settlement is composed of both built and unbuilt areas that form indoor and outdoor spaces. The organization of this built environment structures the social interactions and behaviors of the resident community through the creation of public and private places (Bourdieu 1990; Giddens 1984; Ingold 1993; Pauketat & Alt 2005; Rapoport 1982; 1990; Tilley 2005; 2009). As discussed in **Chapter 2**, the arrangement of such settlement spaces and places develops

[245] Carl Phillips has also proposed the existence of a three-tiered settlement hierarchy among the Umm an-Nar settlements on the Horn of Oman. However, he is careful to state that his proposed settlement hierarchy "need not necessarily imply a 'social hierarchy'" (2007:6). Instead, Phillips suggests that the settlement tiers may represent differences in the lifestyles of their inhabitants. Deferring to the undifferentiated social profile proposed by Cleuziou and Tosi (Cleuziou 2002; 2009; Cleuziou & Tosi 2007), Phillips argues in favor of seeing varying degrees of mobility and sedentism in the different settlement tiers (2007:6).

organically in such a way as to support the social and economic needs of its occupants (Hillier & Hanson 1984; Kent 1990; Rapoport 1982; 1990; Steadman 2000; 2005; see **Section 2.2**). The architectural layout of a settlement, and the buildings that compose it, are thus the products of both the practical function(s) each space serves in society and the cultural expectations for how such a space should be arranged. Although the correlation between architectural layout and sociocultural organization is not exactly one-to-one, an ancient settlement's spatial and structural organization provide archaeologists with a template for assessing and interpreting its society's socio-spatial needs.

In a collection of archaeological, ethnoarchaeological, and sociological studies, Susan Kent (1984; 1987; 1990; 1991), Amos Rapoport (1982; 1990), and others have identified broad levels of correlation between social and structural organization.[246] The collective results of their research find that open-access structures with undifferentiated interior spaces to be associated with cooperative societies, where resources are shared equally amongst the community (Chesson 2003; Crumley 1995; Joyce & Gillespie 2000). Such societies are characterized by a lineage-based organization that draws on real or imagined family ties[247] (Chesson 2003; Gillespie 2000a; 2000b; Joyce 2000; 2008).

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[246] See also Banning 1997; 2003; 2011; Chesson 2003; Lévi-Strauss 1982; Smith 2007; 2010; Steadman 2000; 2004.

[247] The 'house society' model (*société à maisons*) developed by Lévi-Strauss (1982) provides a framework for understanding real and imagined family social structure through the metaphor of the 'house.' Lévi-Strauss defines a 'house' as "a corporate body holding an estate made up of both material and immaterial wealth, which perpetuates itself through the transmission of its name, its goods, and its titles down a real or imaginary line considered legitimate as long as this continuity can express itself in the language of kinship or affinity and, most often, both" (1982:174). This institutional conception of kin-based organization is particularly useful for archaeologists in that it renders identification of kinship structures unnecessary and instead emphasizes the function of the 'household' group – economic, political, religious, or kinship (cf. Chesson 2003; Carsten & Hugh-Jones 1995; Gillespie 2000a; Joyce 2000).

Conversely, segmentation and specialization[248] of settlement and interior built space is linked with hierarchical societies in which resources are unequally distributed throughout the population. As societies become more complex, the segmentation of settlement space and building interiors is used to support their likewise increasingly complicated and specialized social, economic, and ideological behavior (Kent 1990:127-150; 1991; Rapoport 1990). Such complexity and asymmetrical distribution of resources result in the development of economic differentiation and, eventually, the formation of social classes, which are visible in architectural layouts through variations in scale (Ames 2008; Steadman 2011; Wason 1994).[249]

Less apparent in the archaeological record is the social use of outdoor or exterior space. Many of the activities typically carried out in a settlement (e.g., social gatherings, food preparation, certain types of craft production, etc.) can be expected to have taken place out of doors. When identifiable in the archaeological record, such exterior spaces appear as either unstructured activity areas, where the remnants of one or more tasks are found in a space that is not defined by architecture, or as enclosed but unroofed courtyards (Keith 2003; Kent 1990). Yet, it must be noted that outdoor activity areas and courtyards are not mutually exclusive entities. A courtyard may include several activity areas, just as an outdoor activity area can become a courtyard over time with the addition of enclosing walls or surrounding structures. For the purposes of this dissertation, I

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[248] Archeological methods for identifying and analyzing specialized activity areas, especially those in association with domestic contexts, is further discussed in **Section 2.2.2**. See also **Chapter 3** and **Sections 6.3** & **6.4** for discussion of Umm an-Nar specialized uses of space at Bat and elsewhere.

[249] Variations in the size of buildings of the same form may suggest a degree of economic differentiation. However, before such a conclusion can be made it is necessary to ensure that those buildings were used for comparable functions (e.g., houses) (Banning 2010:49; Levy 1995; Levy *et al.* 2006).

consider any space with evidence of repeated human activity, especially food or craft production, to be an activity area. Such activity areas may or may not exist in association with a building. In contrast, I consider any unroofed space that is adjacent to a building, contains evidence of contemporary activity, and is enclosed on at least three sides to be a courtyard. The enclosing of exterior space to form a courtyard is significant for social interpretations of a built environment because it creates a semi-private space for outdoor activities and indicates ownership of or control over the materials within that space (cf. Bandyopadhyay 2006; Hawker 2006; Memorial & Brown 2006; Ragette 2003:59-60; Ujam 2016).

Until now, a detailed analysis of the spatial configurations found in Umm an-Nar settlement architecture has only been carried out at the coastal site of Ra's al-Jinz (Azzarà 2009; 2015; Cleuziou 2003; see also Cleuziou 2009; Cleuziou & Tosi 2000). Building on the work of Serge Cleuziou (2003), Valentina Azzarà traces the development of Early Bronze Age social organization on the Ja'alan Coast beginning with the settlement architecture at the Hafit Period site of Ra's al-Hadd 6 (HD-6) and culminating with the Late Umm an-Nar northern compound at Ra's al-Jinz 2 (RJ-2).[250] Based on her observations of increasing integration in what she interprets as domestic architecture, Azzarà suggests that "the initial [Hafit] trend to split and create new nuclear families seems to be replaced [in the Umm an-Nar Period] by cohabitation in extended families and increasing solidarity between domestic groups" (2009:12). In this interpretation, the

[250] The sites of Ra's al-Hadd and Ra's al-Jinz are both part of a dense network of sites that stretch along the coast of the Oman Peninsula's far northeastern extent. These sites have been researched by the Joint Hadd Project since 1985 (see Cattani 2003; Tosi *et al.* 2001). See **Section 3.2.2** for further discussion.

Late Umm an-Nar RJ-2 northern compound, in which multifunctional courtyards connect numerous rooms that contain evidence of domestic activity, was occupied by an extended household group that was presumably linked by kinship ties (2009:12). Azzarà suggests that such large, cooperative household groups enabled their members to cultivate increasingly specialized skill sets, which, in turn, strengthened the overall household economy (2009:12; 2015; see also Cleuziou 2002; 2003; 2009).

However, compelling as Cleuziou and Azzarà's social reconstruction of the community at Ra's al-Jinz 2 may be, conclusions drawn from Umm an-Nar sites on the Ja'alan Coast cannot be applied to contemporary sites elsewhere on the Oman Peninsula without first accounting for regional differences. Such differences are apparent in the architecture and portable material culture found at Ja'alan sites, at settlements in the Omani interior (such as Bat), as well as at sites on the northwestern coast (cf. Cleuziou 2002; 2003).[251] The settlements at Bat may, therefore, represent a regional tradition of Umm an-Nar social organization distinct from the form practiced at Ra's al-Jinz. Architectural layouts are available, with varying extents and degrees of clarity, for four of Bat's settlements (i.e., the Settlement Slope, al-Khafaji, al-Khutm, and az-Zebah). In the analyses below (see **Section 5.4**), I consider the organization of the known architecture in and pathways of movement through each of these settlements and offer an interpretation of the social structure(s) they may have supported. Additionally, by comparing the

[251] The settlement of Ra's al-Jinz 2 is constructed of mudbrick architecture (bricks measuring between 52x38x10 and 36x32x8 cm) without stone foundations (Cleuziou & Tosi 2000:29-29), which contrasts with with the substantial stone foundations found at Bat and other Umm an-Nar sites in the Omani interior. Additionally, the portable material culture found at RJ-2 attests to a significant degree of economic interaction with the Indus and Mesopotamia (Cleuziou *et al.* 1994; Cleuziou & Tosi 2000:44-53, 59-66; Méry 1988; 1991). This economic and potentially cultural interaction may account for some of the differences apparent between Ra's al-Jinz and interior sites such as Bat.

architectural patterns at Bat to those at Ra’s al-Jinz and other excavated Umm an-Nar settlements (e.g., Maysar 1), I highlight organizational differences and similarities that suggest qualities of the Umm an-Nar society that may extend beyond the boundaries of the Bat landscape.

Together, the two studies that I carry out on Bat’s settlements in this chapter provide a multi-scalar perspective on the site’s Umm an-Nar social complexity and organization. By considering the orientation and inter-visibility of the site’s settlements, I evaluate the social connections between groups on the Bat landscape and assess the size of the site’s community in each phase of the Umm an-Nar Period. By examining the structural arrangement of space within those settlements, I begin to reconstruct the social organization of Bat’s Umm an-Nar communities. The results of these studies will reinforce and build on the work of other scholars, including Frifelt (1976; 1985; 2002a), Phillips (2007), Cleuziou (2002; 2003; 2009), and Azzarà (2009; 2015), in interpreting the lived Umm an-Nar society. Such a lived perspective complements the period’s well-documented mortuary remains and moves toward a wholistic understanding of the Umm an-Nar civilization.

5.3 Bat’s Settlement Landscape and Monument Inter-visibility

The archaeological landscape at Bat is populated by a substantial collection of Bronze Age monuments and settlements of varying forms. As discussed at length in **Chapter** 4, these sites are distributed across the width of the Wadi Sharsah, in its surrounding hills, and beyond. I also discussed how the presumed relationship between

Umm an-Nar tower monuments and settlements (cf. Cleuziou & Tosi 2007:145-147; Frifelt 1976; 1985; Magee 2014:101; Orchard 2000) is present at Bat, although the specific form of those relationships varies from settlement to settlement. However, what we have not yet considered is the relationship(s) between Bat's settlements. Was Bat one large, interconnected community broken into small settlements or neighborhoods? Or was it a collection of completely independent communities that were all taking advantage of the accommodating resources in the Wadi Sharsah? This issue is of fundamental importance in how Bat should be considered in the wider context of the Umm an-Nar settlement pattern.

One strategy for addressing such questions of sociocultural relationships between sites set at some distance from one another is to consider the visual connections (or lack there of) between sites. Such visual analyses have been convincingly carried out on landscapes, particularly monumental landscapes, in various parts of the word.[252] These studies are based on the theory that, of the five senses, vision provides humans with the greatest source of spatial information (Hoffmann 1999; Llobera 2007; 2011; Thomas 2004). What an individual can see from a given location informs his or her sense of place and, if personally connected with that place, of identity (Ingold 2000; 2001; Thomas 1993; Tilley 1994; 2009; see also Earley-Spadoni 2015; Osborne 2014:195). Thus, if Bat's settlements or (more likely) their associated monuments were within site of one another, it is reasonable to assume that their occupants shared a sense of both place and

[252] Most well known are are visual analyses of the Neolithic mortuary landscapes in the British Isles (cf. Bender 1998; Earl & Wheatley 2002; Llobera 2007; Tilley 2005; 2009). Similar studies have also been successfully carried out in Mesoamerica and the Near East (Bongers *et al.* 2012; Earley-Spadoni 2015; Garcia 2013; Golden & Davenoport 2013; Ogburn 2006; Rua *et al.* 2013; Smith & Cochrane 2011; Supernanat 2014).

identity. Such a conceptual affiliation would support the interpretation of Bat as a single, large community that incorporated multiple monuments and settlements. In contrast, a lack of visual connection between sites would, instead, indicate that Bat was a landscape populated by multiple but conceptually independent communities.

5.3.1 Visual Analysis Parameters and Limitations

The topographically varied terrain in and around Bat makes it feasible that the Umm an-Nar builders of the sites strategically selected the locations for settlements and monuments based on the visual connections between parts of the landscape. In other words, the locations of settlements and especially monuments were chosen in order to reinforce and perpetuate social links between two or more groups through visual affiliation (cf. Earley-Spadoni 2015; Giraud 2009; 2010; Giraud & Gernez 2006; Hermanşah 2013; Llobera 2001; Ogburn 2006). In my assessment of the visual network of sites on Bat's landscape, I consider the viewsheds (or possible fields of vision) from and direct lines of site between both Umm an-Nar tower monuments and (when possible) between monuments and settlements. Although the specifics of tower functions have been long debated and are beyond the scope of this dissertation,[253] a basic quality of any monument is to be seen (Bradley 1998; 2005; Osborne 2014; Pauketat 2000; Steadman 2005; Tilley 2005; 2009; Williams 1997). Whatever other function(s) they may have served, the massive Umm an-Nar towers were intended to catch the attention of any in

[253] Theorized purposes include control of water resources for irrigation (Cleuziou 1989a; 2002; 2003; 2007; 2009; Frifelt 1976: 59; 1989:113; 2002:04–110; Gentelle & Frifelt 1989; Orchard & Orchard 2002:230-232; Potts 1994; 2012; Tengberg 2003; 2012; Yule & Weisgerber 1998), community storage, or as fortifications (Hastings et al. 1975:13; Humphries 1974; Potts 1994; 2012; Weisgerber 1981:198-204). See also Cable & Thornton 2013; Döpper *forthcoming*; Harrower *et al.* 2014;; Orchard 2000; Orchard & Orchard 2010; Thornton *et al.* 2013; 2016.

their vicinity (Cable 2012; Cable & Thornton 2013; Harrower *et al*. 2014). This quality, in combination with their relationship to their respective settlements, makes it possible to use Bat's towers to both complement and (when necessary) stand in place of their settlement's visibility. Thus, with the aid of the Bat GIS, the visual interconnectivity between the site's monuments (and, when possible, settlements) can be analyzed to interpret the social connections across the ancient landscape.

However, the accuracy of this method of socio-spatial analysis is necessarily dependent upon the accuracy of the available landscape data. Models of any ancient site or landscape almost always incorporate a number of assumptions or uncertainties that result from site formation processes, inconsistent access to archaeological material, or damages caused by more recent human activity. The model of Bat's Umm an-Nar landscape used in this dissertation is no exception. Uncertainties in the Bat GIS model which have the potential to impact the results of a visibility analysis include: questions regarding the original height of the tower monuments, the accumulation of substantial quantities of sediment on the wadi valley floor, the potential location and extent of date palm groves, and the contemporaneity of the monuments and settlements considered. Nevertheless, by recognizing these limitations and their potential for influencing GIS-based visibility analyses, it is possible to account for and minimize their impact.

To date, seven monumental towers have been identified in the heart of Bat's landscape (i.e., Matariya, Khafaji, Rojoom, Sleme, Qa'a, the Settlement Slope's tower 1156, and the Husn al-Wardi) and numerous others are known from its periphery (i.e., Khutm, Wahrah Qala, and ad-Dariz South). While relatively uniform in diameter (i,e., 20 m), these towers vary in construction style and state of preservation (cf. Thornton, Cable, & Possehl 2016). Most pertinent to the present discussion is the question of how high the monuments stood above the surrounding landscape in their completed form. Using the quantity of rockfall found in the immediate surroundings of Kasr al-Rojoom, Frifelt estimated an original height for the monument of 5-6 m (1976; 1985).[254] While rockfall fields are apparent in the areas around Bat's other towers, similar height estimates are not yet available.[255] Additionally, the possibility of a superstructure built on top of the stone tower must also be considered when evaluating the potential original height of Bat's monuments. No trace of a superstructure contemporary with the Umm an-Nar foundations has yet been identified at any of Bat's towers. However, evidence of mudbrick walling atop the Maysar-25 tower (Weisgerber 1981:198-199) as well as historical reuses of the earlier monuments for Islamic era mudbrick tower foundations (e.g. Bat's Husn al-Wardi and the Washra Qala; Cable 2016b) indicate that such a superstructure may well have existed in the Early Bronze Age. Judging by the historical (e.g., Islamic) examples, the presence of a mudbrick superstructure would have substantially added to tower height and visibility.[256]

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[254] When first identified by Frifelt, Kasr al-Rojoom was preserved to a height of 2.5 m above the surrounding flood plain (1976).

[255] It is, nevertheless, apparent based on the surviving remains and rockfall fields that certain towers were taller than others at the time of their construction. The unexcavated Kasr al-Sleme is preserved 5-6 m above the surrounding landscape and also features a significant surrounding collection of rockfall (Frifelt 1976:61). The preserved heights and rockfall around the earlier Kasr al-Matariya and Settlement Slope Tower 1156 are dwarfed in comparison.

Based on non-systematic observations of Bat's assorted towers and their rockfall fields, I roughly estimate that the monuments' stone structures stood between 3 m (Kasr al-Matariay and the Settlement Slope tower 1156) and 8 m (Kasr al-Sleme).

[256] The Islamic mudbrick towers built atop the stone foundations of Umm an-Nar tower on the Bat landscape add a further 5-12 m of height to the monuments.

Complicating matters further is the substantial aggregation of sediment that has taken place within the Wadi Sharsah's flood plain since the Umm an-Nar Period. Soundings excavated in the vicinity of Khafaji and Matariya show an accumulation that in places reaches heights of more than 3 m (cf. Cable 2016a; Desruelles *et al*. 2016; Frifelt 1985; Nathan *forthcoming*; Thornton 2016). Additionally, earth moving activities in the modern/historical village of Bat, located near the Husn al-Wardi, have revealed what appears to be even greater sediment accumulation in the southern half of the Wadi Sharsah valley.[257] This change in Bat's land surface both obscures the location of potential sites situated within the wadi valley and decreases the accuracy of the DEM (which was generated from modern satellite imagery) for areas that have experienced accumulation (e.g., the wadi plain). As a result, the sections of Bat's viewshed maps that engage with the wadi valley floor do not accurately represent the visual experience in the Umm an-Nar Period. Rather, a lower valley floor would, in all probably, have increased the visibility of the elevated tower monuments beyond what is suggested by the DEM-dependent viewshed maps.[258]

Potentially more problematic is the likelihood that portions of Bat's Umm an-Nar landscape were covered with date palm groves (*Phoenix dactylifera*) that would have obstructed the visibility of its settlements. Date palms, a species believed to have been a key component in the Umm an-Nar agricultural strategy, can reach heights of up to 20 m and are typically grown in dense groves on the flat terrain of oases (cf. Cleuziou 1996;

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[257] This area of Bat's landscape has been the subject of far less systematic research than the northern half of the valley. More detailed study is necessary to confirm the depth and age of the soil accumulation.

[258] Bat's towers are all situated either on natural prominences or artificial mounds that elevate them above their surroundings and increase their visibility/field of vision.

Cleuziou & Costantini 1982; Tengberg 1998; 2012). Such groves are understood as being used to create a sheltered, humid environment that accommodates other cultivates grown by early agricultural communities on the Oman Peninsula (Boivin & Fuller 2009; Cleuziou 1992; 1997; 2009; Cleuziou & Tosi 2007; Magee 2014:24; Tengberg 1998; 2012). Indeed, date palm groves continue to be used to similar effect in the modern Bat community. While evidence supporting the presence of date palms at Bat during the Bronze Age is limited (cf. Tengberg 1998; 2016),[259] it is not unreasonable to expect a portion of the site's Umm an-Nar landscape to have been covered by such groves. The presence of a dense date palm canopy would have dramatically restricted the visual experience of settlements located near or within a grove.

The three uncertainties concerning Bat's Umm an-Nar landscape discussed so far (i.e., tower height, sediment aggregation on the valley floor, and the possible presence of date palm groves) all have the potential to directly impact the visibility of the site's monuments and settlements. However, we can begin to account for the potential influence of these factors by considering where and how they would effect the results of GIS-based visibility analyses. The GIS-generated viewshed maps of the Wadi Sharsah's valley floor are particularly problematic. Not only are the elevations for this portion of the landscape unknown, but the possible locations for Bat's date palm groves are limited to the valley floor's relatively flat terrain and ample water supply (cf. Barrow 1998;

[259] The preservation of botanical remains at Bat has been found to be consistently poor across the site. The clearest evidence of early domesticates comes from chaff and grain impressions found in mudbricks (cf. Tenbgerg 2016).

Tengberg 2012).[260] Together, these two limitations in the dataset render any viewshed results that engage directly with the wadi floor meaningless. Yet, it is just as important to note that these issues do not impact viewshed results for the rocky hills surrounding the Wadi Sharsah. In the visibility analyses that follow, I thus limit my consideration of Bat's viewshed maps to the hilly areas bordering the wadi plain.

The issues of tower height and, for examples situated on the wadi valley floor (i.e. Matariya, Khafaji, Rojoom, and the Husn al-Wardi), position in relation to possible date palm groves are also difficult to address directly. However, characteristics of the towers' positions on the landscape and features in their immediate surroundings indicate that ensuring the visibility of the monuments was a priority for Bat's Umm an-Nar population. In addition to the towers' physical monumentality, their importance as highly visible symbols on the landscape is indicated by their strategically chosen locations. Without exception, the towers are situated on either natural or artificial prominences that elevate them above their immediate surroundings.[261] Furthermore, Bat's towers are often encircled with additional features (i.e., ring walls, ditches, adjacent platforms, and, in one remarkable case, a cistern system)[262] that further emphasize their monumentality and visibility on the landscape. While it is possible that the towers situated on the wadi plain were hidden within date palm groves and intended to be viewed only by the inhabitants

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[260] In contrast, we can assume that Bat's Umm an-Nar settlements situated on hillsides (i.e., the Settlement Slope and al-Khutm) were far less visually restricted by any nearby groves that those located on the wadi plain.

[261] In the examples of Matariya, Khafaji, and possibly Kasr al-Rojoom and the Husn al-Wardi, the artificial mounds would have added several meters to the towers' heights. These foundation mounds are now largely buried beneath the accumulated wadi silts. See **Section 4.3.1** for further discussion.

[262] cf. Cable 2016a; 2016b; Mortimer 2016; Kondo 2016; Thornton 2016

of their associated settlement, I suggest that these traits indicate otherwise.[263] Rather, it seems more probable that the towers' locations, heights, and often dramatic encircling features were strategically selected or constructed in order to ensure monument visibility amid the varied terrain and ground cover of the Bat landscape. Relying on this likelihood, the viewshed maps generated for the wadi valley towers do not account for any potential date palm groves, but instead represent the maximum possible field of vision from the monument. Similarly, the lines of site maps assume that the towers either were set apart from or rose above any contemporary palm groves.[264] While future research may disprove these assumptions, with this section I interpret the inter-visibility of Bat's tower monuments as indicators of the site's Umm an-Nar social connections.

Finally, as the Umm an-Nar Period progressed, occupation moved from one part of Bat's landscape to another and certain tower monuments fell out of use while others were added (see **Chapter 4** for further discussion). This development must be accounted for in any visual analysis. However, the nature of Bat's archaeological preservation results in many of its settlements and especially its monuments remaining visible on the landscape long after they fall out of use. This creates a palimpsest or 'landscape of memory,' where any new addition to the landscape – settlement or monument – builds on a pre-existing visual and structural network (Akkermans *et al.* 2014; Bailey 2007; Bender

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[263] Tower monuments being hidden within date palm groves would also contrasted sharply with the numerous examples at Bat that are prominently positioned on rocky hillsides where date palms could not have grown (i.e., the Settlement Slope tower 1156, Kasr al-Qa'a, Kasr al-Sleme, and Kasr al-Khutm).

[264] With the ethnographic example of the Husn al-Wardi, which features a 16th century mudbrick fort built on the remains of a Bronze Age Umm an-Nar tower, we see an example of how such monuments might have risen above the date palm canopy. While the stone tower is hidden within the modern date palm grove (which is notably situated at a higher elevation than its putative corresponding Bronze Age grove would have been), its mudbrick superstructure is not. From the second story of the mudbrick fort it is possible to clearly see the massive Kasr al-Sleme to the northwest.

2002; Bradley 1998; Steadman 2005; Tilley 1994; 2009; Wilkinson 2003:41-42; Yoffee 2007). Maintained visual connections with abandoned tower monuments may have served to reinforce a conceptual link between living and past Umm an-Nar communities on the Bat landscape (Bender 2002; Steadman 2005; Tilley 2005; 2009). Therefore, when considering the visual networks of Bat's settlement landscape chronologically, we cannot look just at the sites active in that particular sub-period. We must consider all known sites that would have been present on the landscape during the period in question.[265]

Such visibility analyses are made possible by the Visibility toolset available through ArcGIS software. This toolset uses a DEM to calculate direct lines of sight and possible fields of vision from a given location or locations on a modeled landscape. In my analyses, I used the Viewshed 2 and Line of Site functions to examine the visibility and inter-visibility of settlements and monuments on the Bat landscape.[266] For each of the site's tower monuments and hillside settlements (i.e., the Settlement Slope and al-Khutm),[267] I generated a viewshed map that represents their possible fields of vision.[268]

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[265] As previously discussed (see **Section 4.3.4**), it is highly likely that more settlements and monuments exist or existed on Bat's Umm an-Nar landscape than have so far been identified. As scholarly knowledge of Bat's ancient landscape expands, the results the visual analysis presented in this section must be adjusted accordingly.

[266] GIS constructs viewshed models by calculating the extent of direct lines of sight from a specified point or points on a DEM. All locations connect to the source point by an unimpeded line of sight are included in the viewshed map (cf. Llobera 1996; 2001; 2006; 2007; Whitely & Gillings 2000).

[267] Although it is not located on a hillside, I also generated a viewshed map for the nearby settlement of az-Zebah. In contrast with the Wadi Sharsah, the plain of the Wadi as-Shawi'ay, on which Zebah is situated, has not experienced any significant sediment accumulation. Therefore, it is possible to accurately model the settlement's field of vision.

[268] The tower viewshed maps depict the possible field of vision from a single point (the tower) on the modeled landscape. The settlement viewshed maps depict the field of vision from a poly-line drawn across the length of the settlement. Vertices of these poly-lines are located at each identified building in the settlement.

For each of Bat's broad occupational phases (i.e., Early, Middle, and Late Umm an-Nar), I then generated a map of the direct lines of site between the monuments and settlements then in existence on the landscape.[269] Viewshed maps were calculated to include the full 360º panorama (or azimuth) for each location for a maximum possible distance (outer radius) of 5 km from the source.[270] In order to account for the original heights of the settlement and tower structures, I projected (offset) the walls of all rectilinear buildings to a height of 2.5 m above their surrounding ground surface and all tower monuments to a height of 4 m above their surroundings.[271] Direct lines of site between towers (points) and settlements (poly-line vertices) are calculated using the same parameters. In the discussion that follows, I consider the results of these viewshed and direct line of site maps and the visual networks that they suggest. I conclude with an interpretation of what these visual patterns imply about the social connections between the groups that populated Bat's landscape over the course of the Umm an-Nar Period.

5.3.2 Visual Network Analysis

Bat's Early Umm an-Nar landscape features three monumental towers but no clear settlement locations: Kasr al-Matariya and Kasr al-Khafaji on the northern half of the Wadi Sharsah plain and the Settlement Slope tower 1156 in the northern hills.[272]

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[269] See **Chapter 4** for further discussion on Bat's occupational chronology; see also Thornton & Ghazal 2016.

[270] The 5 km outer radius is based on the average maximum distance of human sight (Llobera 1996).

[271] The projected tower height does not account for the possibility of a mudbrick superstructure and is, in most cases, an overly conservative estimate for the stone structure. By using a conservative tower height in my calculations of tower viewshed maps and direct lines of site, I ensure that the patterns observed in this analysis are reliable.

[272] It should be noted here that the tower at Matariya predates those at the Settlement Slope and Khafaji. A mudbrick tower was present at the site during the Late Hafit Period and a stone tower was constructed on top of it during the Early Umm an-Nar (Cable 2016a).

Thus, for the Early Umm an-Nar Period, viewsheds are only provided for the towers (see Figs. 5.1-5.5).[273] A close visual connection exists between the Matariya and Khafaji towers, the viewsheds for both of which include broad panoramas of the the Wadi al-Sharsah plain and surrounding hills.[274] There is also a direct line of site between the Khafaji and Settlement Slope towers, however the Settlement Slope and Matariya monuments do not share such a visual link.[275] The Settlement Slope tower's viewshed rather includes a distant view of Bat's Umm an-Nar necropolis in the hills to the northwest.[276] This rather simple visual network suggests that the settlements related to Bat's Early Umm an-Nar towers did identify with one another as either closely linked neighboring communities or as widely spaced neighborhoods of a single community.

During the Middle Umm an-Nar Period, the Matariya tower is abandoned but remains a visual presence on the Bat landscape. The Settlement Slope tower also falls out of use but, in contrast to Matariya, this monument is leveled and used as a partial foundation for the new (Middle Umm an-Nar) phase of occupation. Therefore, the Settlement Slope tower is not considered as part of Bat's visual network for the Middle or Late Umm an-Nar phases. Rather, in the Middle Umm an-Nar, the known activity on the

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[273] Figs. 5.1-5.3 depict the viewsheds for each tower independently. In Fig. 5.4, the viewshed graphics are combined in a single image to demonstrate the overlapping views from each tower. Finally, Fig. 5.5 provides a simplified map of the direct lines of sight between the Early Umm an-Nar monuments.

[274] While it is not possible to discuss details of what was visible in the Wadi Sharsah flood plain, it is worth noting that portions of the plain are included in the viewshed maps.

[275] In the eventuality that the Settlement Slope tower 1156 reached a height of 6 m or more (due to either taller stone walling than is estimated or the presence of a mudbrick superstructure), then a line of site would be established between it and Kasr al-Matariya.

[276] Similar to Bat's settlement landscape, the necropolis underwent its own gradual expansion and development over the course of the Umm an-Nar Period. For more on this, see Böhme 2011; 2012; Böhme & al-Sabri 2011; Döpper & Schmidt 2014b; Frifelt & Gentelle 1989.

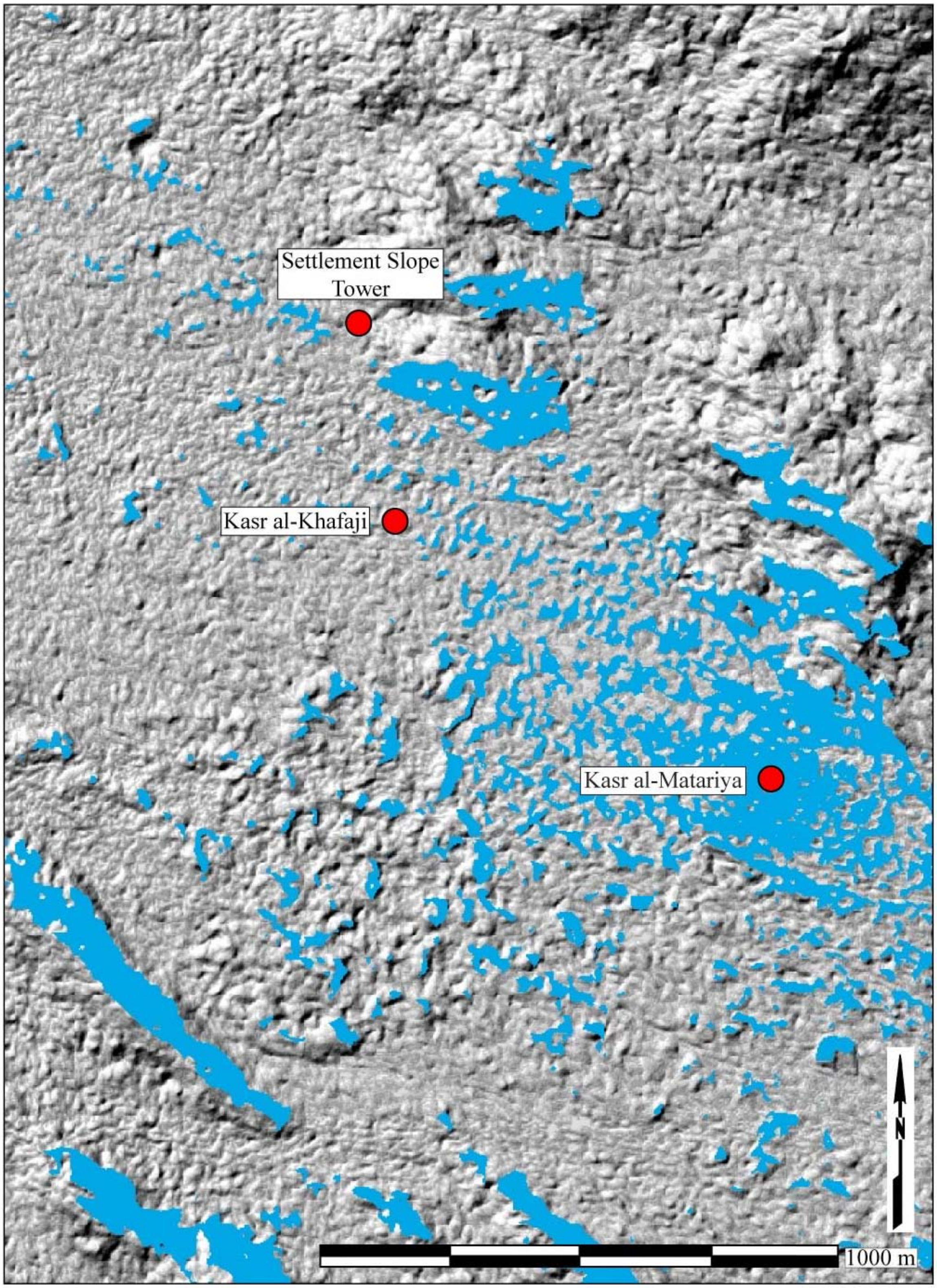

Fig. 5.1: Kasr al-Matariya viewshed.

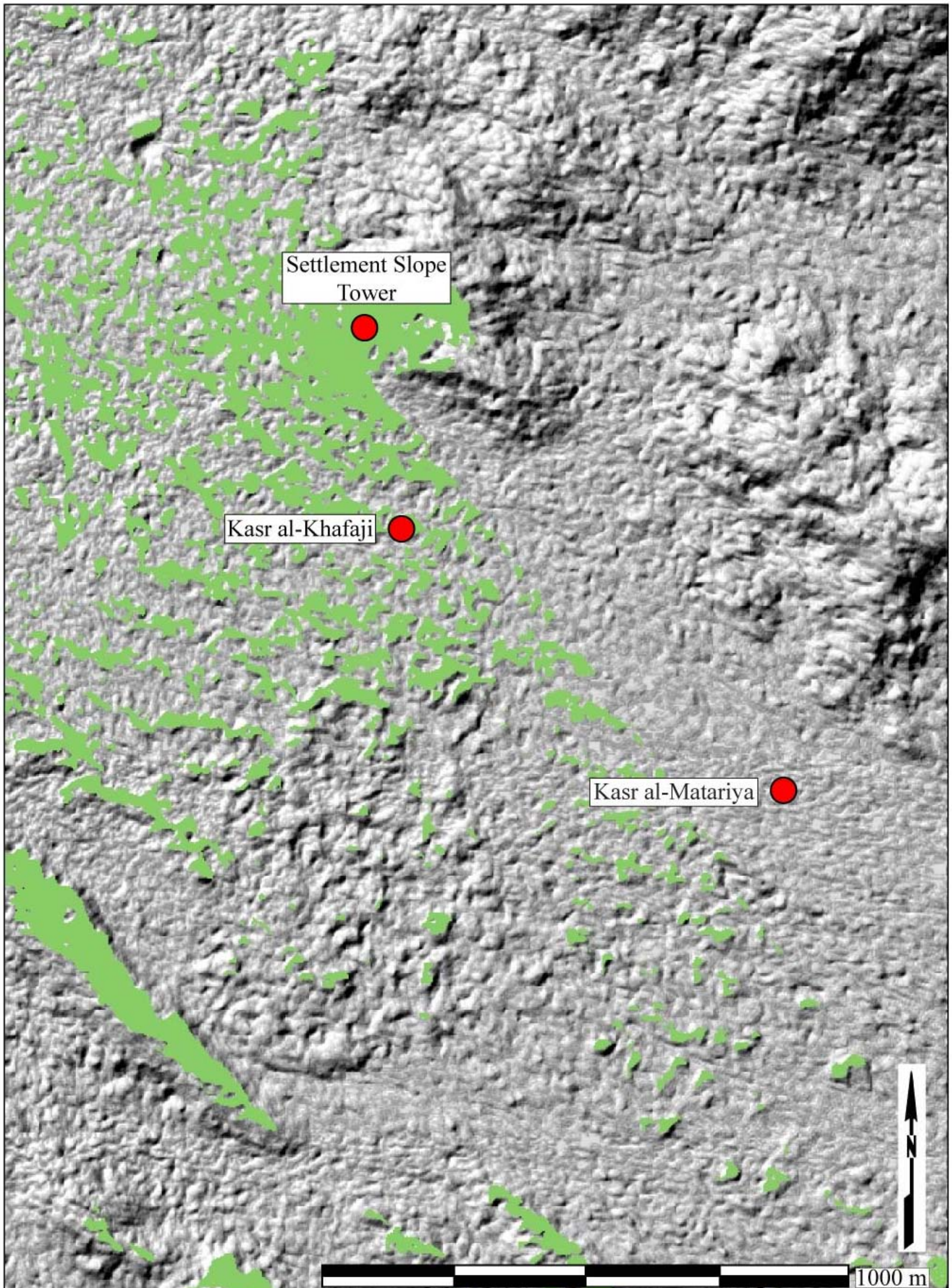

Fig. 5.2: Settlement Slope Tower (1156) viewshed.

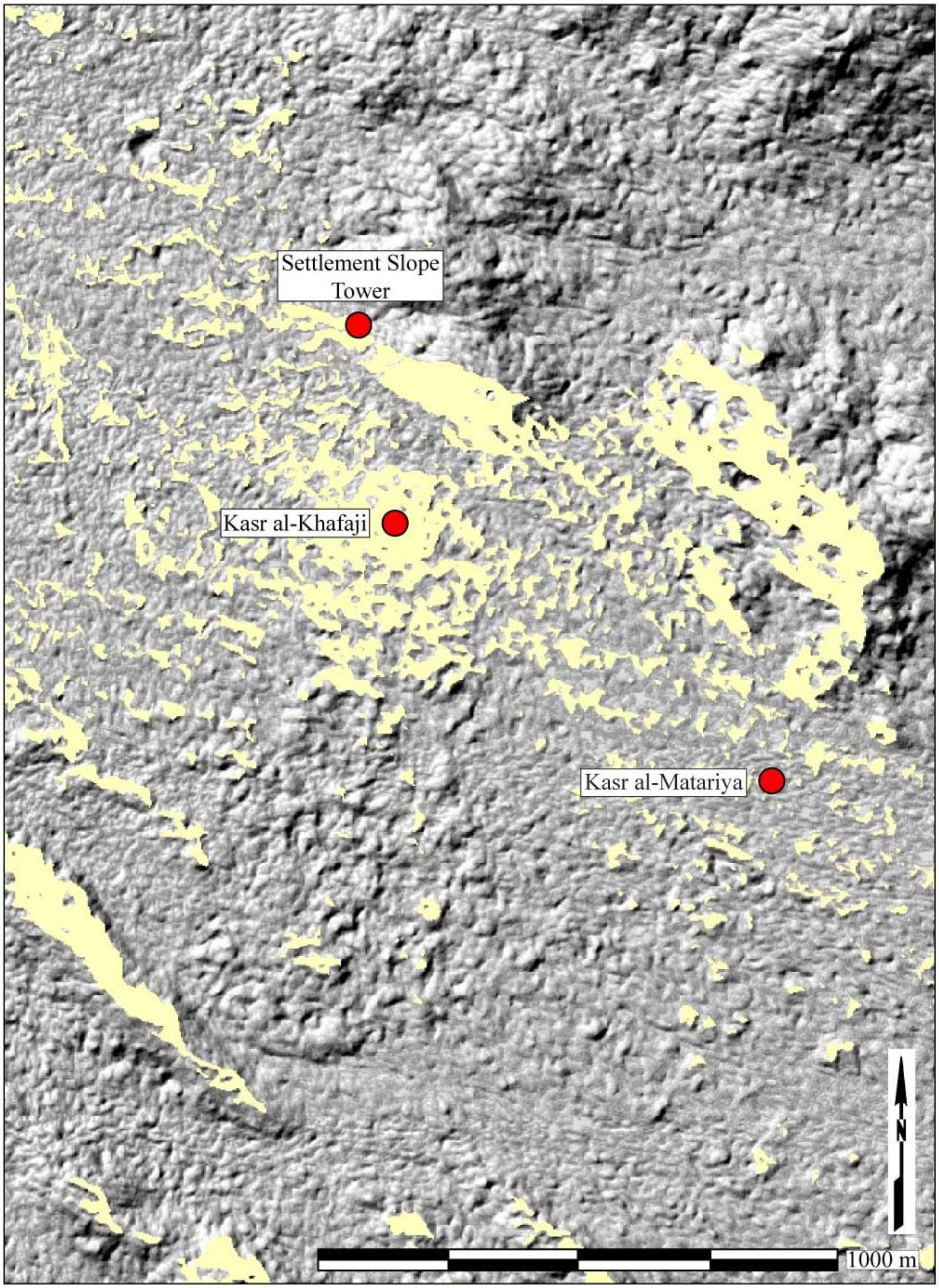

Fig. 5.3: Kasr al-Khafaji viewshed.

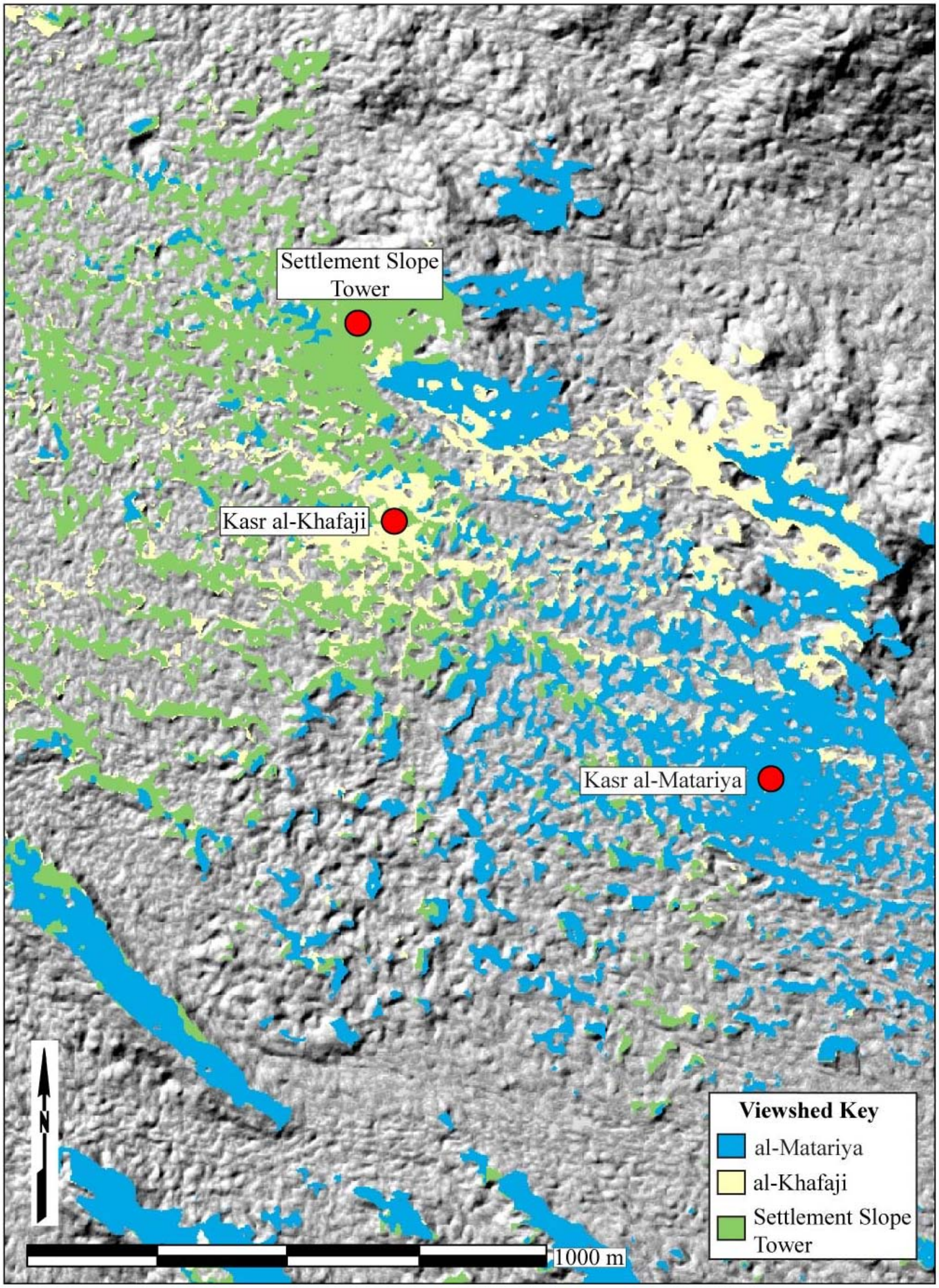

Fig. 5.4: Bat's Early Umm an-Nar towers combined viewshed.

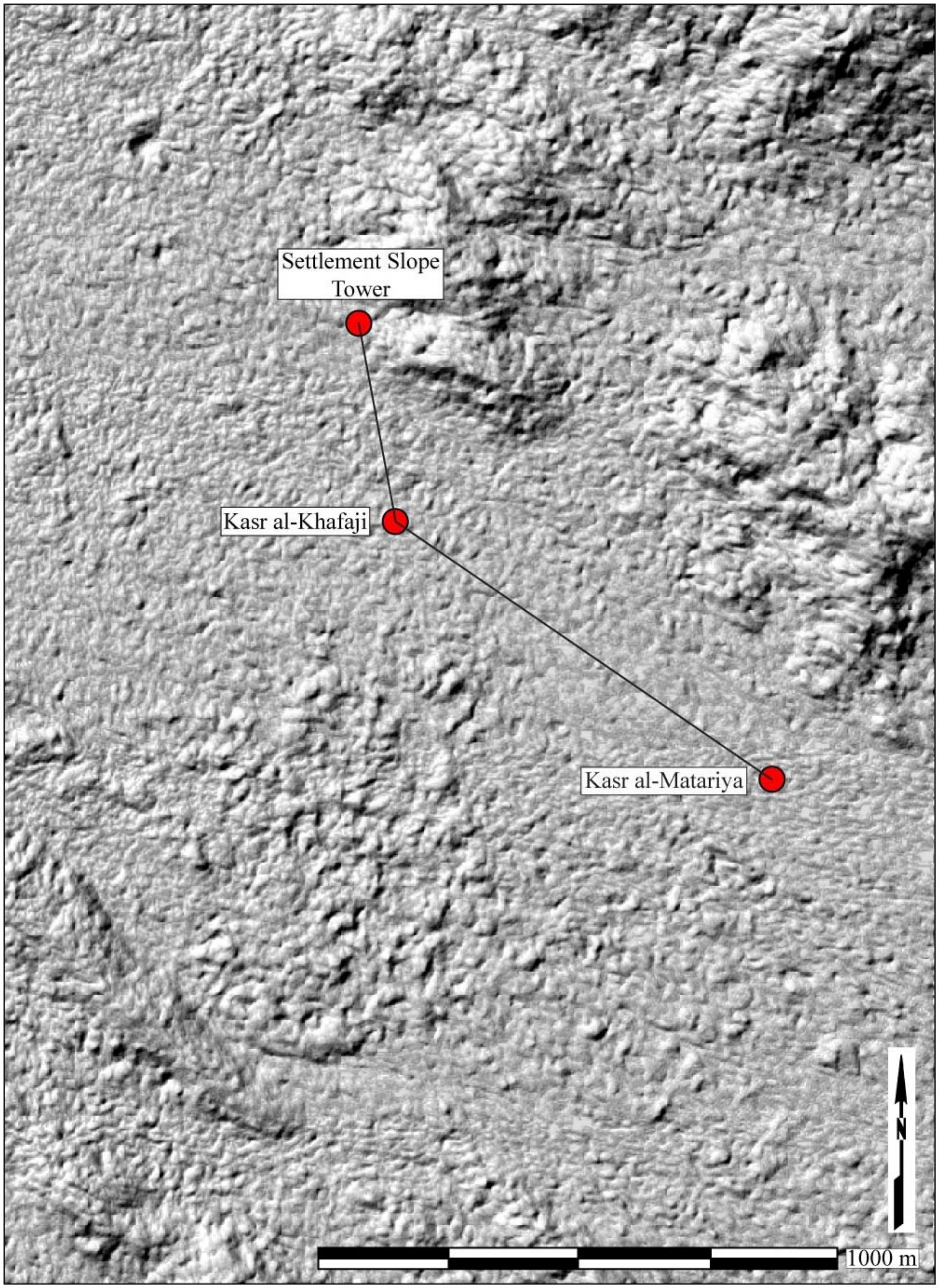

Fig. 5.5: Direct lines of sight between Bat's Early Umm an-Nar towers.

Settlement Slope centers on the cluster of rectilinear architecture on the northwestern end of the hillside and the newly constructed Kasr al-Rojoom monument just south of this area on a prominence of the wadi plain (see Figs. 5.6-5.7).[277] The viewshed from the Settlement Slope's rectilinear structures is similar to that of its earlier tower[278] – including the Khafaji tower and settlement[279] to the southeast, the Rojoom tower to the south, and the necropolis to the northwest. The viewshed from the Rojoom tower, in contrast, includes both the Khafaji tower/settlement[280] and the Matariya tower in addition to the Settlement Slope occupation and the necropolis. The addition of the Rojoom tower thus brought the Settlement Slope more decisively into the visual (and presumably social) network of Bat's heartland (see Figs. 5.8-5.9).

The Middle Umm an-Nar settlement and tower at al-Khutm, located 3 km to the northwest of the center of Bat, are both physically disconnected from the larger community and demonstrate a notably different visual organization. The site's tower is located at the northwestern end of a long, limestone ridge line and has a viewshed that includes the northern channel of the Wadi Hijr and portions of the much wider southern channel (Fig. 5.10). However, the al-Khutm settlement on the southern face of that ridge

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[277] This 'prominence' may represent yet another artificial foundation mound, like those known from Matariya and Khafaji.

[278] Viewsheds of settlements with multiple structures are generated using poly-lines to represent multiple observer points (one line vertex per structure). Locations on the landscape that can be seen by only one observer point are indicated with the lightest tone, while locations that can be seen from the maximum number of observer points are indicated with the darkest tone.

[279] Comments regarding the Khafaji settlement in this discussion refer only to the buildings immediately surrounding the tower, on the monument's elevated foundation mound. See **Sections 4.31** and **6.4** for further discussion.

[280] As the Khafaji settlement encircles the tower, its viewshed is virtually identical to that of the tower and is not reproduced here.

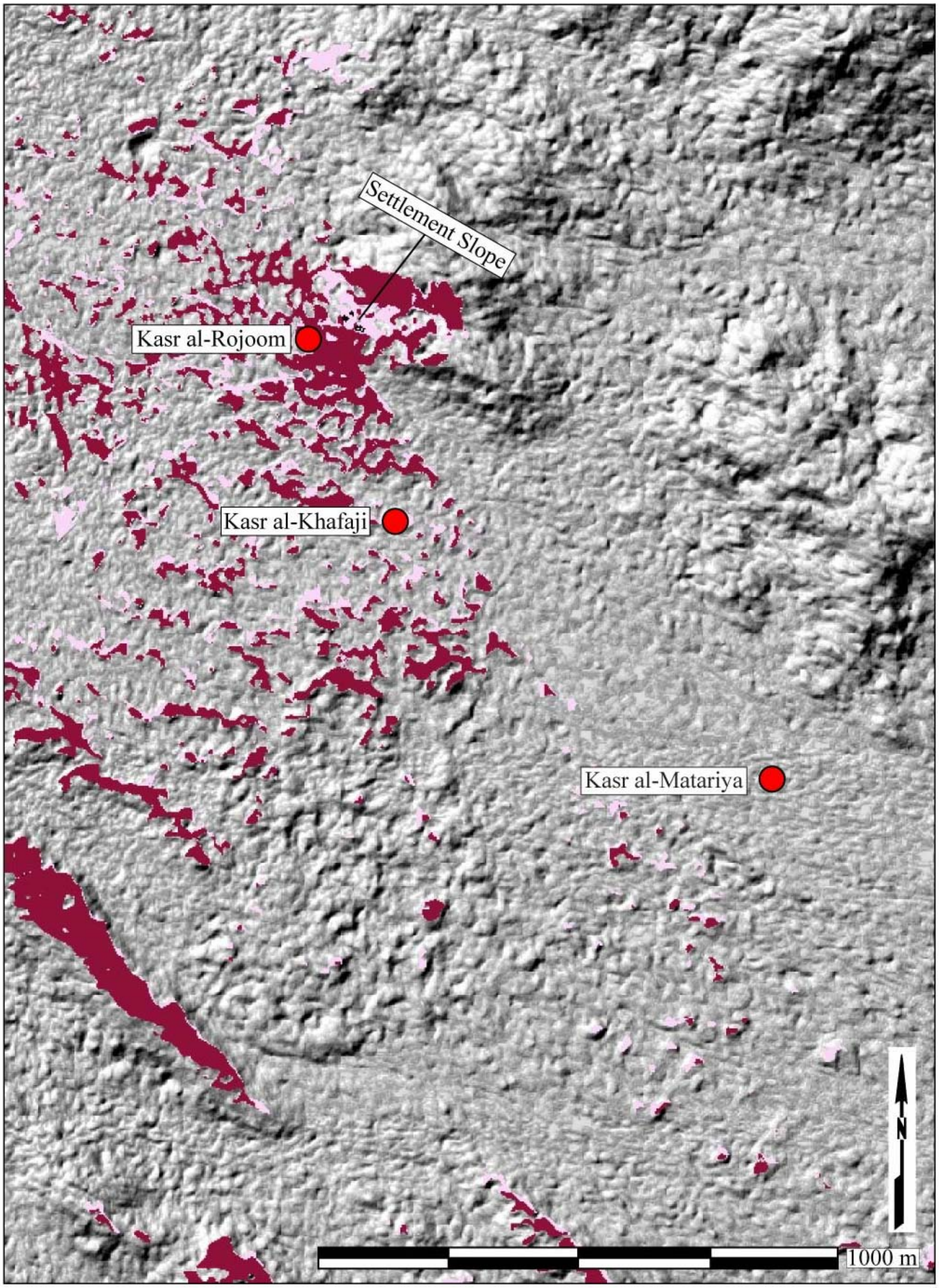

Fig. 5.6: Middle Umm an-Nar Settlement Slope viewshed. Darker colors indicate visibility from a greater number of buildings on the Settlement Slope.

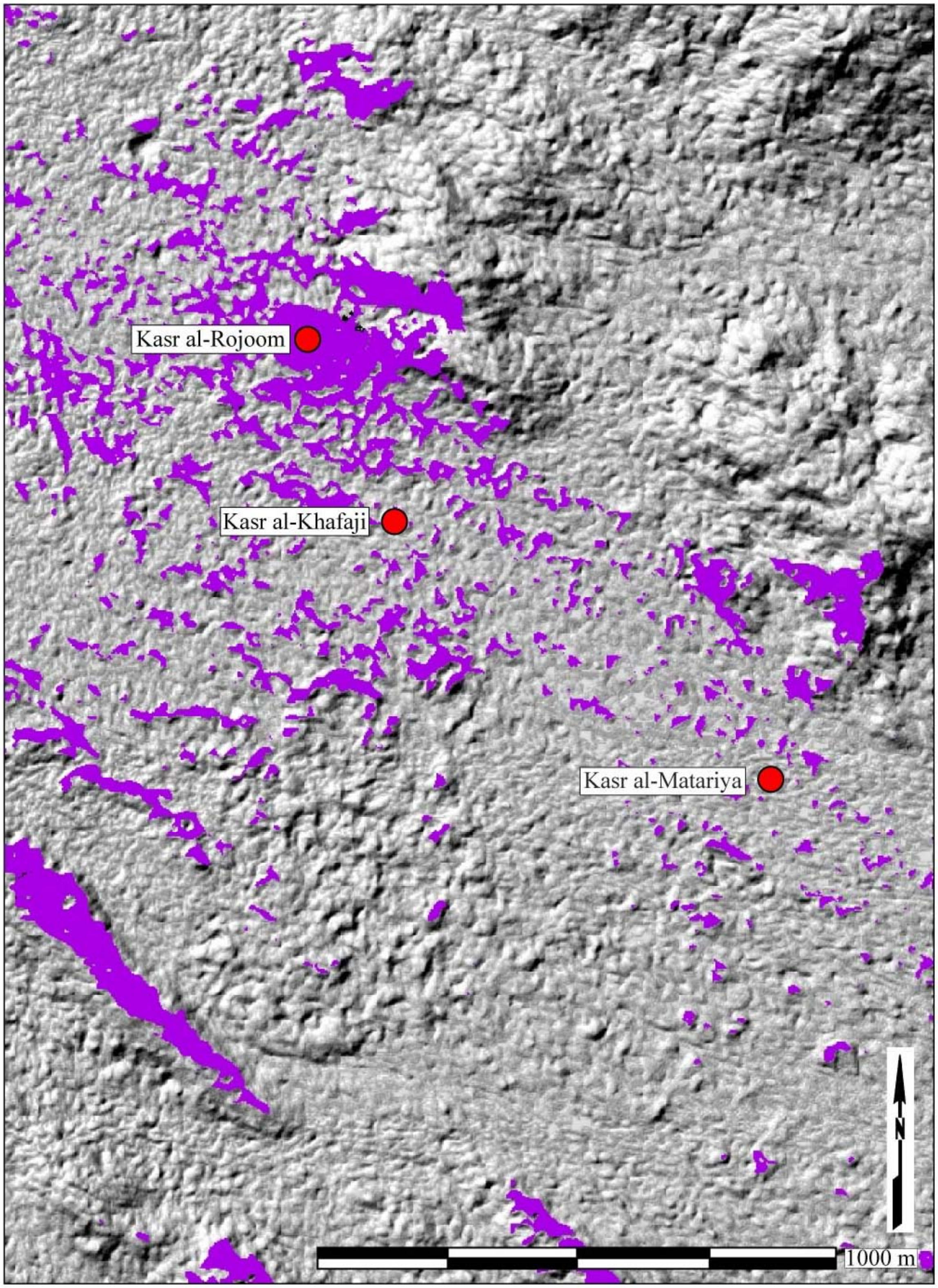

Fig. 5.7: Kasr al-Rojoom viewshed.

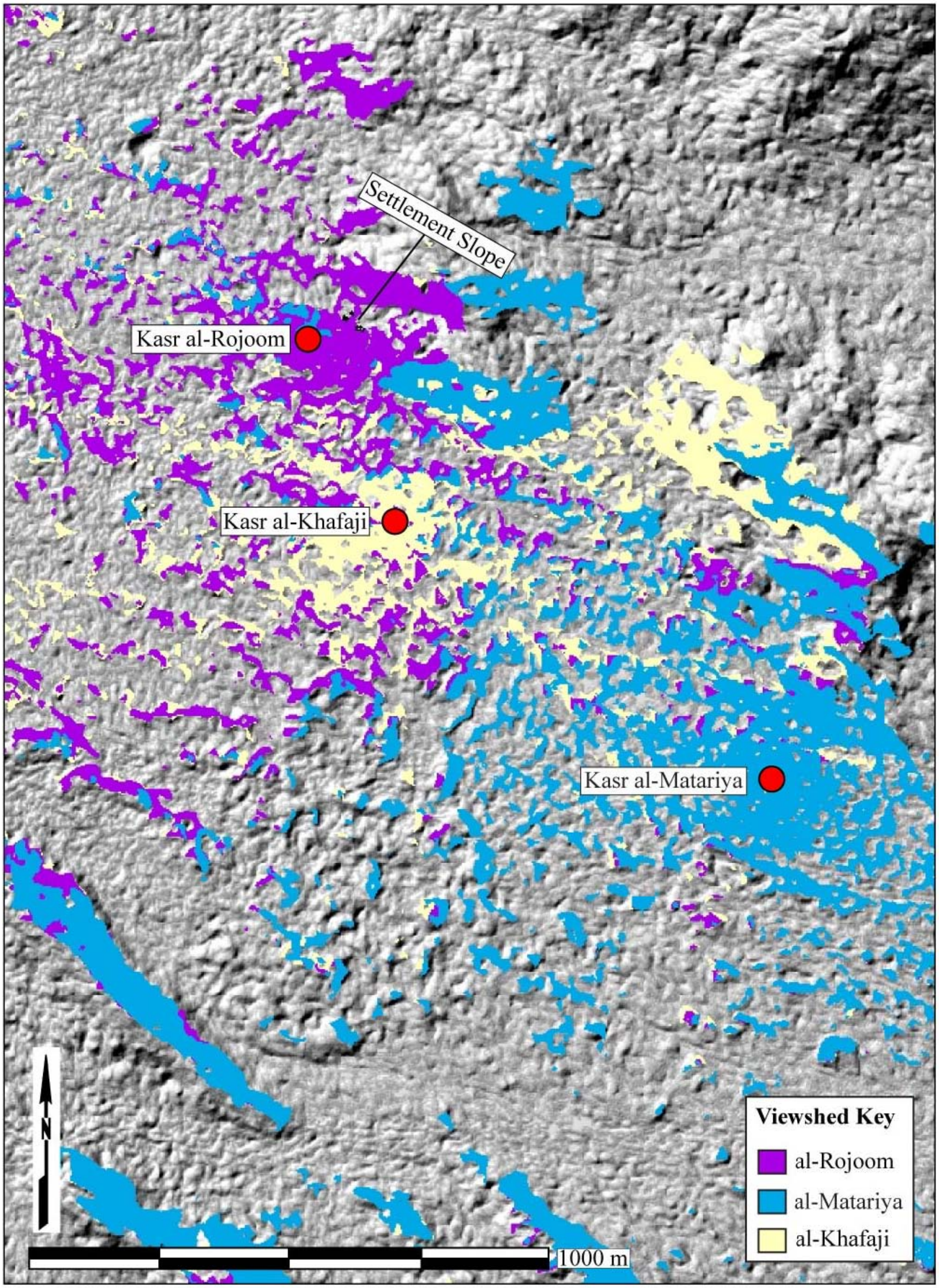

Fig. 5.8: Bat heartland's Middle Umm an-Nar towers combined viewshed.

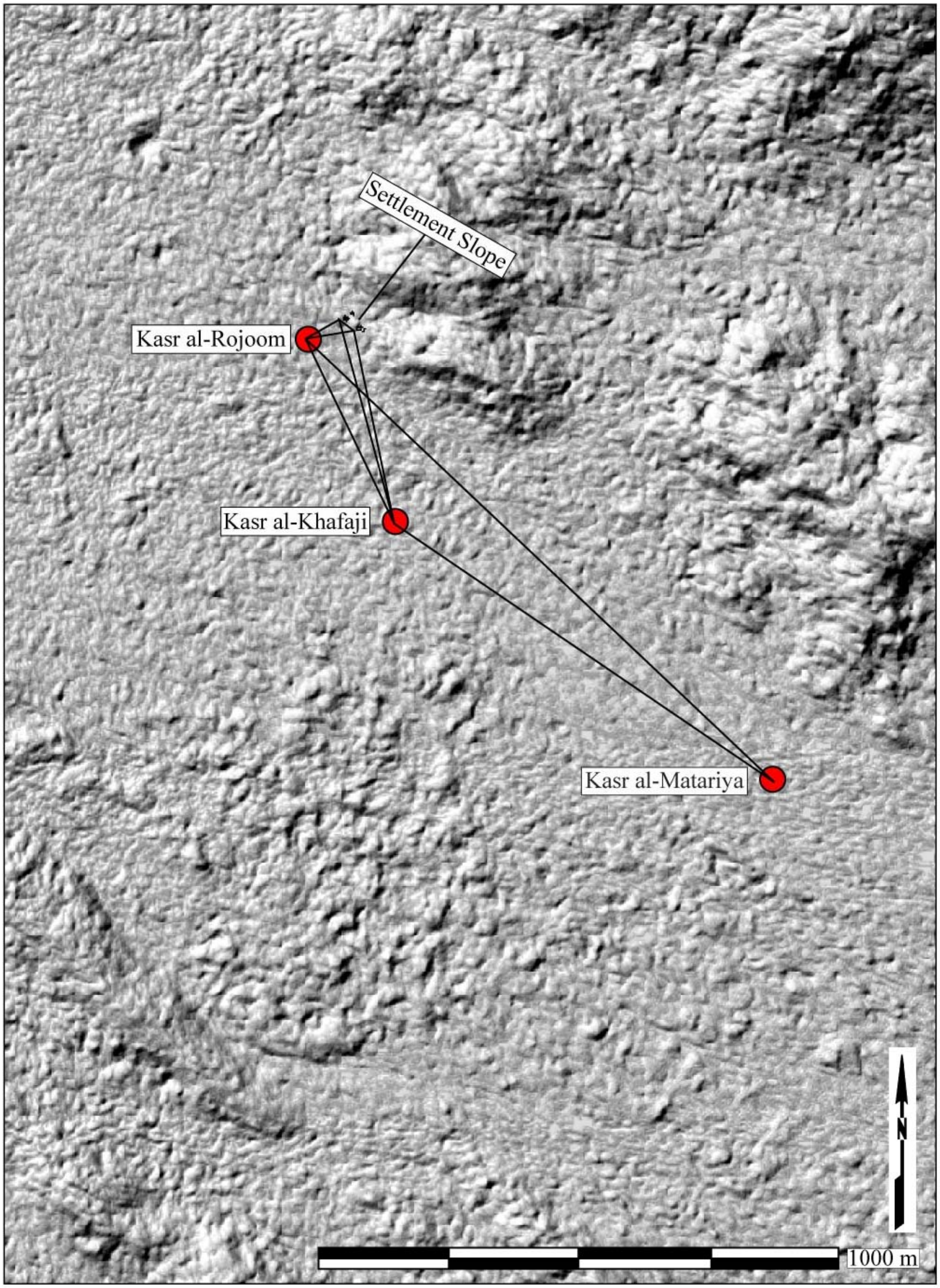

Fig. 5.9: Direct lines of sight between Bat's Middle Umm an-Nar towers and Settlement Slope buildings.

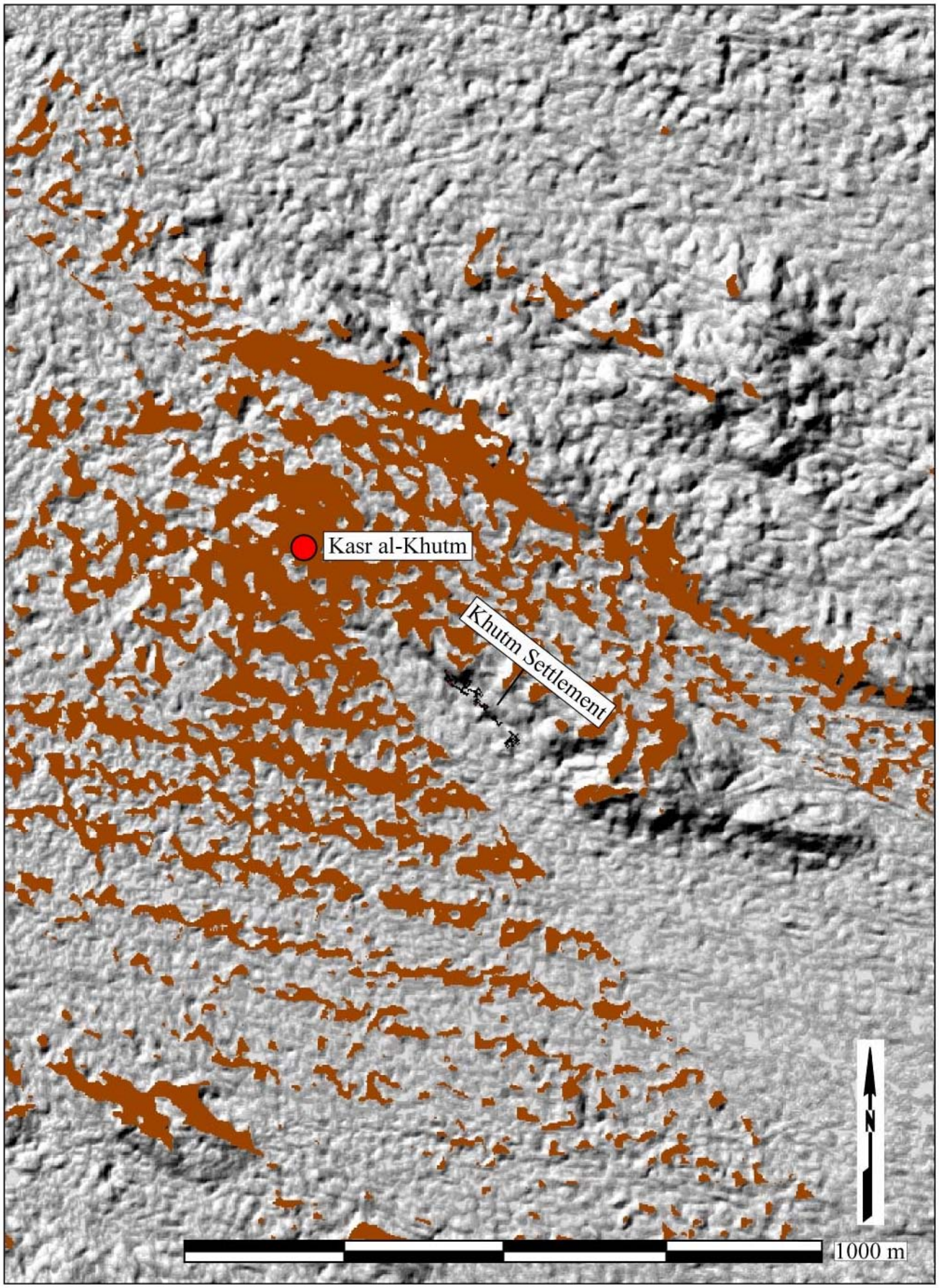

Fig. 5.10: Kasr al-Khutm viewshed.

has no direct line of site to the tower.[281] Instead, the settlement's viewshed encompasses the wide wadi plain to the south (Fig. 5.11).[282] This organization stands in contrast to the expected spatial relationship between the Umm an-Nar tower and settlement.

Yet, I suggest that the location of the Khutm tower along the northern wadi channel is significant in interpreting this arrangement. The narrow, northern channel of the Wadi Hijr provides the most direct access from all regions west to the center of Bat.[283] The density of Bat's visually connected towers, tombs, and settlement during this period and earlier is far greater than any other known area in the region, which suggests that the site served as an important regional and/or economic center. The Khutm tower's location along the northern branch of the wadi leading to Bat may have marked the community's location to anyone moving along the route. Conversely, the settlement's location on the southern side of the ridge provided it with privacy from the traffic moving along the northern wadi branch and more direct access to the agricultural or grazing land in the wide wadi plain to the south (Fig. 5.12). Alternatively, it is also possible that further settlements and/or monuments exist or existed in the wadi plain south of the Khutm settlement. Although these would now be buried beneath the accumulated wadi silts, their existence and social affiliation with the Khutm community would offer another

[281] Although some indications of domestic activity were identified in the area immediately surrounding the tower monument (Cattani *et al*. 2017), the site's primary settlement is located on the far side of the Khutm ridge.

[282] Like the Wadi Sharsah, the southern channel of the Wadi Hijr that borders the southern edge of the Khum hillside has experienced significant sediment accumulation. The depth of that accumulation since the Umm an-Nar Period is unknown. It is, therefore, not possible to comment on the details of what was included in the sections of Khutm's viewshed within the wadi plain.

[283] The wadi channel continues to support all traffic to and from the modern community at Bat today – linking the small village to the regional center of 'Ibri 40 km to the west.

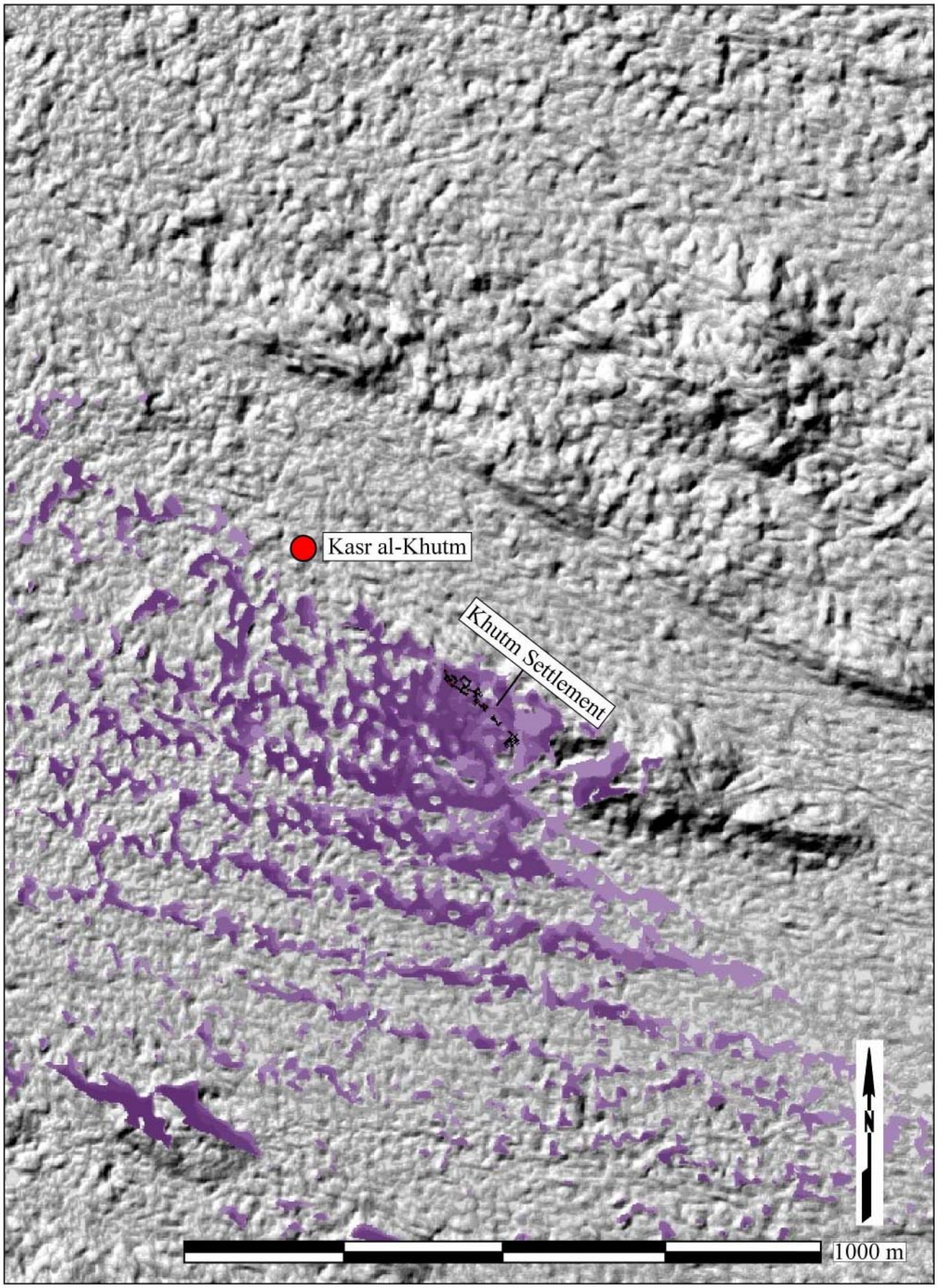

Fig. 5.11: Khutm settlement viewshed

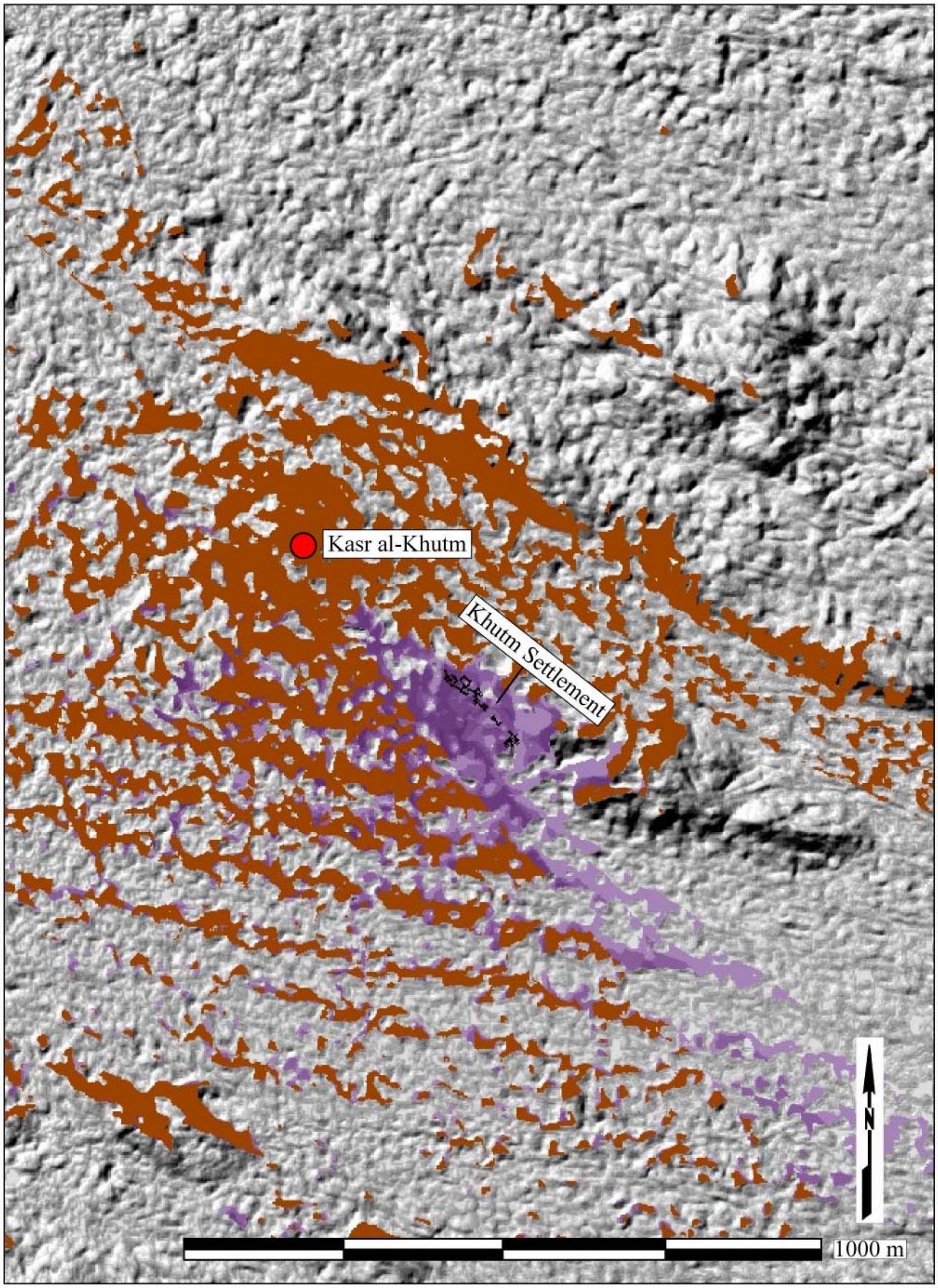

Fig. 5.12: Khutm combined tower and settlement viewshed.

explanation for why the site's settlement is located at such physical and visual distance from its tower. Due to the distance between the Bat heartland and the assorted remains at Khum, the satellite site cannot reasonably be considered part of Bat's core Middle Umm an-Nar community. Nevertheless, I suggest that the strategic positioning of its tower on the route to Bat was intended to conceptually link it to the larger center.

The visual network of Bat's Late Umm an-Nar phase is the most complex of the three sub-periods. During this phase, the tower and settlement at Khafaji are abandoned but, like Matariya before them, they remain part of the site's visual network. Additionally, the towers of al-Qa'a, al-Sleme, and the Husn al-Wardi must also be considered. The construction dates for these monuments and the locations of any associated settlements are as of yet unknown. I consider them as part of the Late Umm an-Nar network here out of default. Future research may well alter this assessment and the corresponding visual networks.

In this more densely constructed landscape, the occupation on the Settlement Slope spreads across the full hillside and has a viewshed that encompasses broad swaths of the Wadi Sharsah to the south and west. Included in this viewshed are the nearby towers at Rojoom, Khafaji, and Matariya, and, in the distance, potentially also the southern towers at Sleme and the Husn al-Wardi (Fig. 5.13; see also Figs. 5.19 & 5.20). The recently discovered al-Qa'a tower, perched on the rugged hill just southeast of the Settlement Slope's hill, may have also been associated with this settlement. From al-Qa'a, the viewshed includes Matariya to the south, Khafaji to the west, and much of the Settlement Slope occupation to the northwest (Fig. 5.14). During the Late Umm an-Nar,

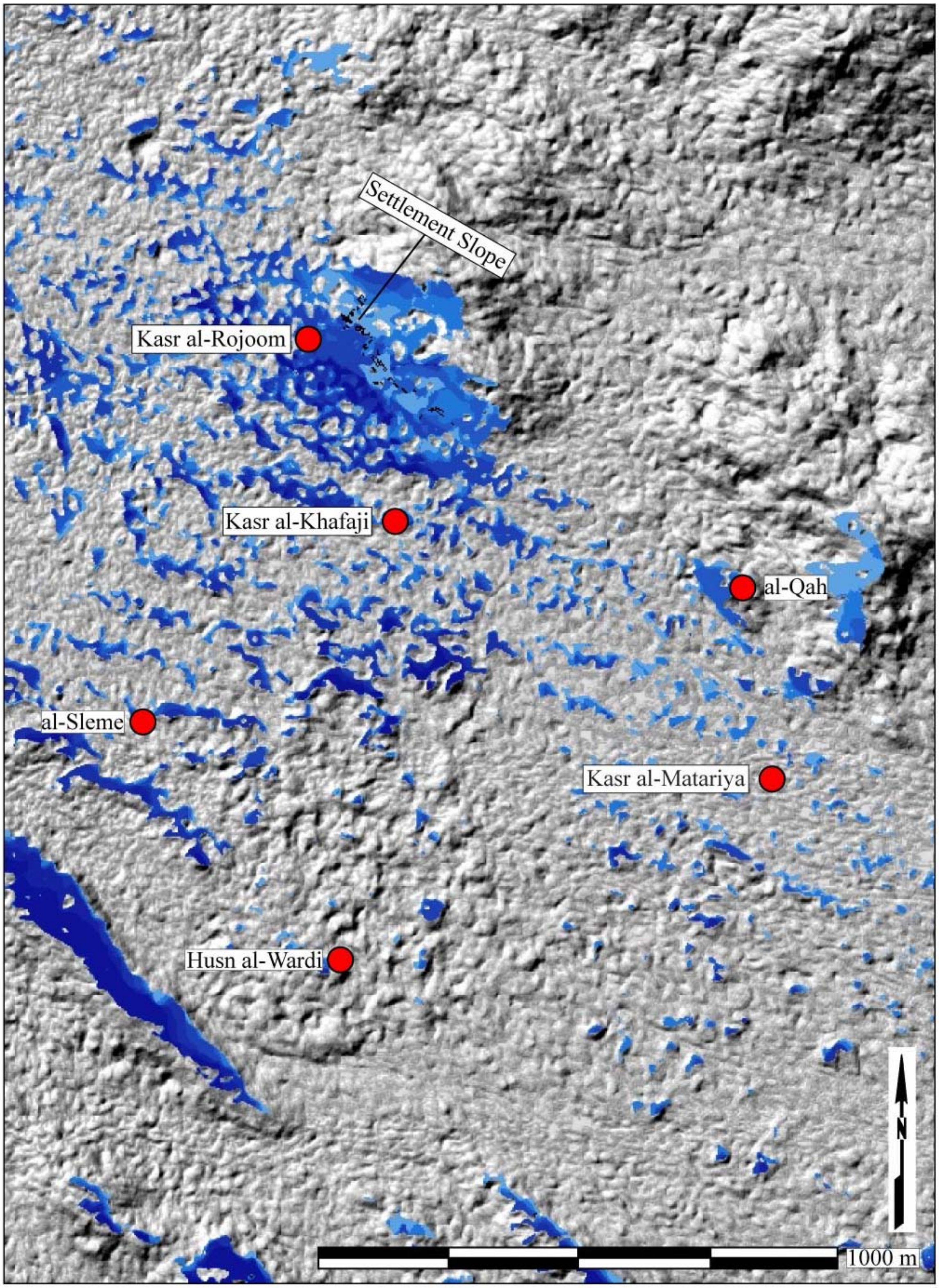

Fig. 5.13: Late Umm an-Nar Settlement Slope viewshed. Darker colors indicate visibility from a greater number of buildings on the Settlement Slope.

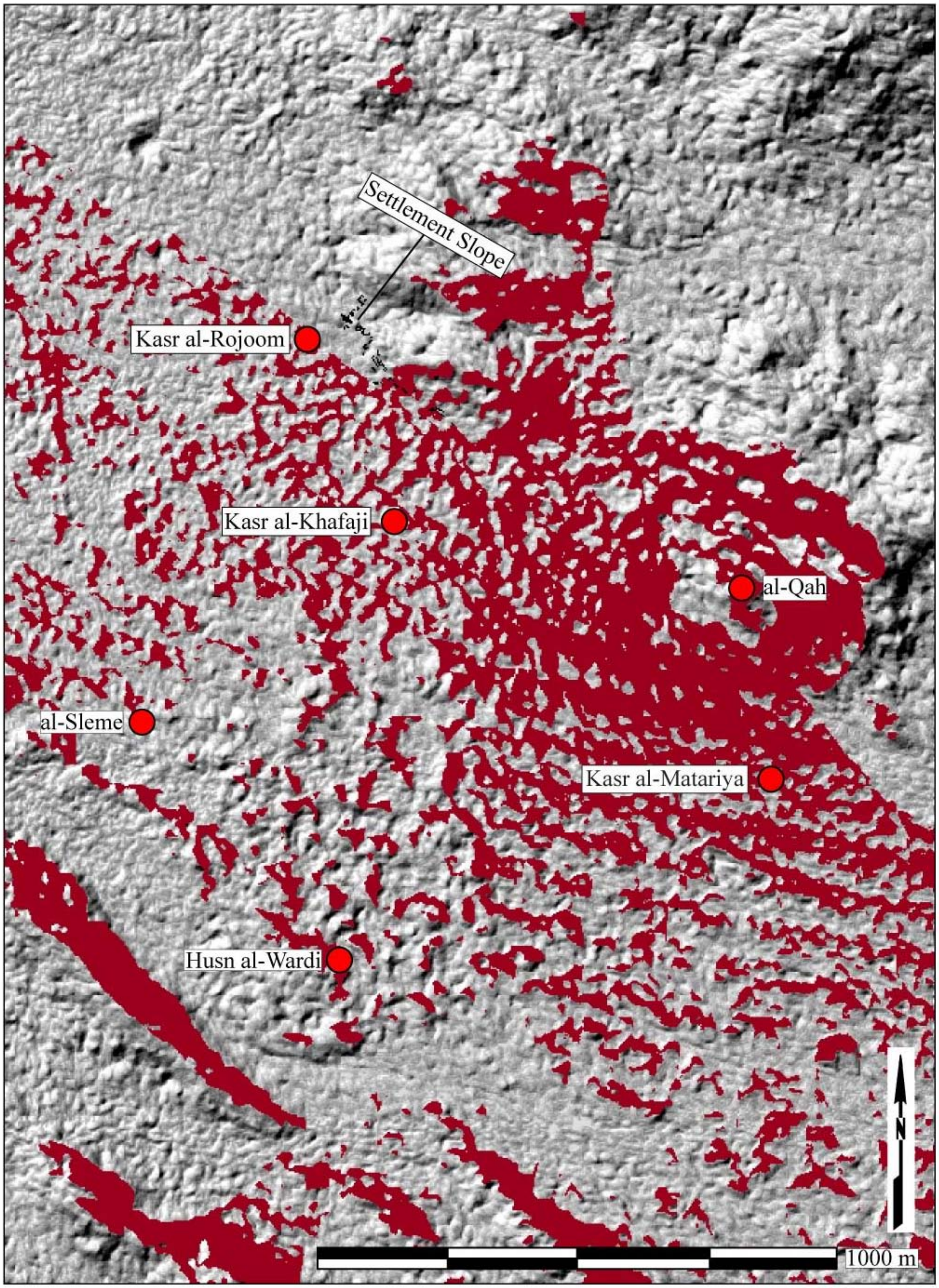

Fig. 5.14: Kasr al-Qa'a viewshed.

Bat's settlement landscape in the northern half of the Wadi Sharsah thus appears to be visually centered on the large occupation on the Settlement Slope, which is surrounded by a network of four towers: Matariya, Khafaji, Rojoom, and Qa'a. Any contemporary settlement located on the valley floor would have been visually dwarfed in comparison. From any location on the Settlement Slope hillside settlement, it would have been possible to see at least one (often two or more) tower monuments (see Figs. 5.15 & 5.16). This monumentalization of the surrounding landscape unquestionably marks the northern Wadi Sharsah valley and especially the Settlement Slope hill as a significant location and community on the Bat landscape and in the broader region of the Oman Peninsula's inner piedmont.[284]

The southern half of the Wadi Sharsah at Bat is far less thoroughly studied than the northern half. The two known Umm an-Nar towers in this region, Kasr al-Sleme and a second beneath the 16th century Husn al-Wardi, are now surrounded by the modern village of Bat and, in the case of the Husn, its date palm groves. While the stone Umm an-Nar tower beneath the Husn al-Wardi is concealed within the modern palm groves, from the vantage point of the overlying mudbrick fort it is possible to clearly view al-Sleme to the northwest.[285] Assuming similar prominences, observers from either tower could also have glimpsed the monuments and settlement on the northern side of the wadi (see Figs. 5.17 & 5.18). The Settlement Slope hillside, roughly a kilometer away from

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284 Bat is one of the few known Umm an-Nar sites featuring four or more tower monuments (other sites include Hili, Bisya, and Khashbah). With seven so far discovered towers, Bat is the most densely monumentalized Umm an-Nar settlement landscape known on the Oman Peninsula (Cable & Thornton 2013).

285 It is also worth noting that the ground level around the Husn tower and, thus, the level of any present date palm canopy would have been significantly lower in the Umm an-Nar Period.

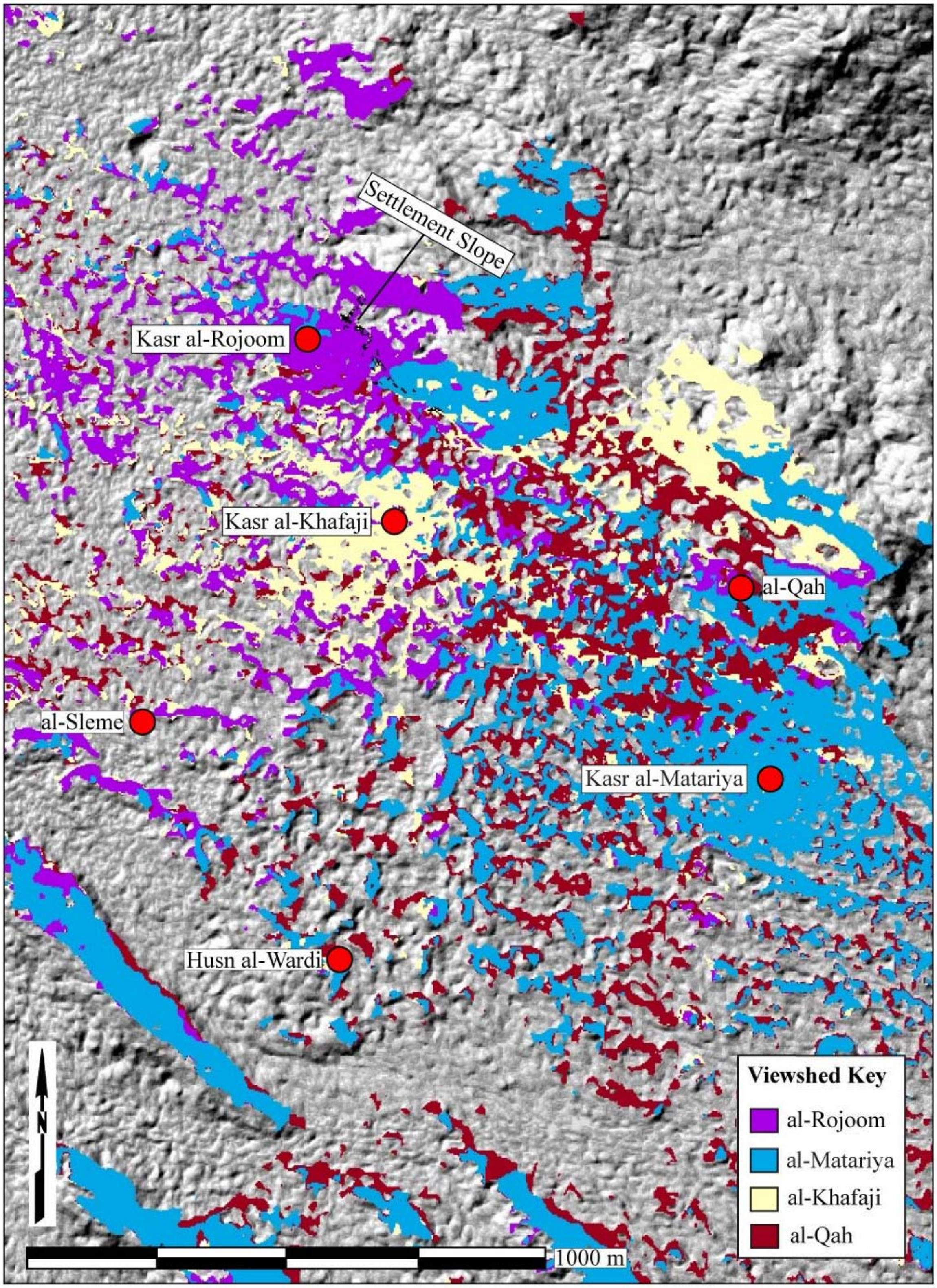

Fig. 5.15: Bat's northern Late Umm an-Nar towers combined viewshed.

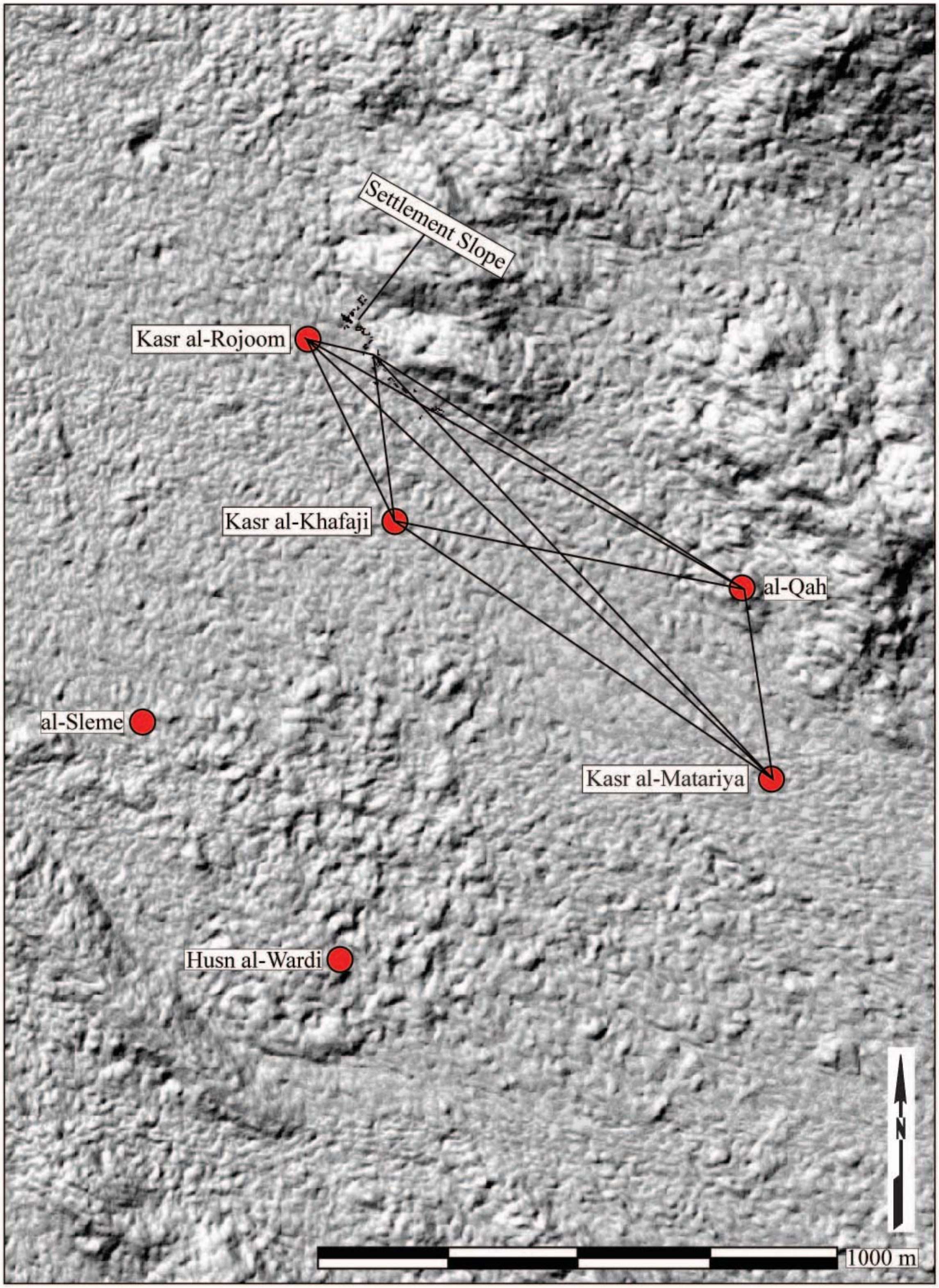

Fig. 5.16: Direct lines of sight between Bat's northern Late Umm an-Nar towers and Settlement Slope buildings.

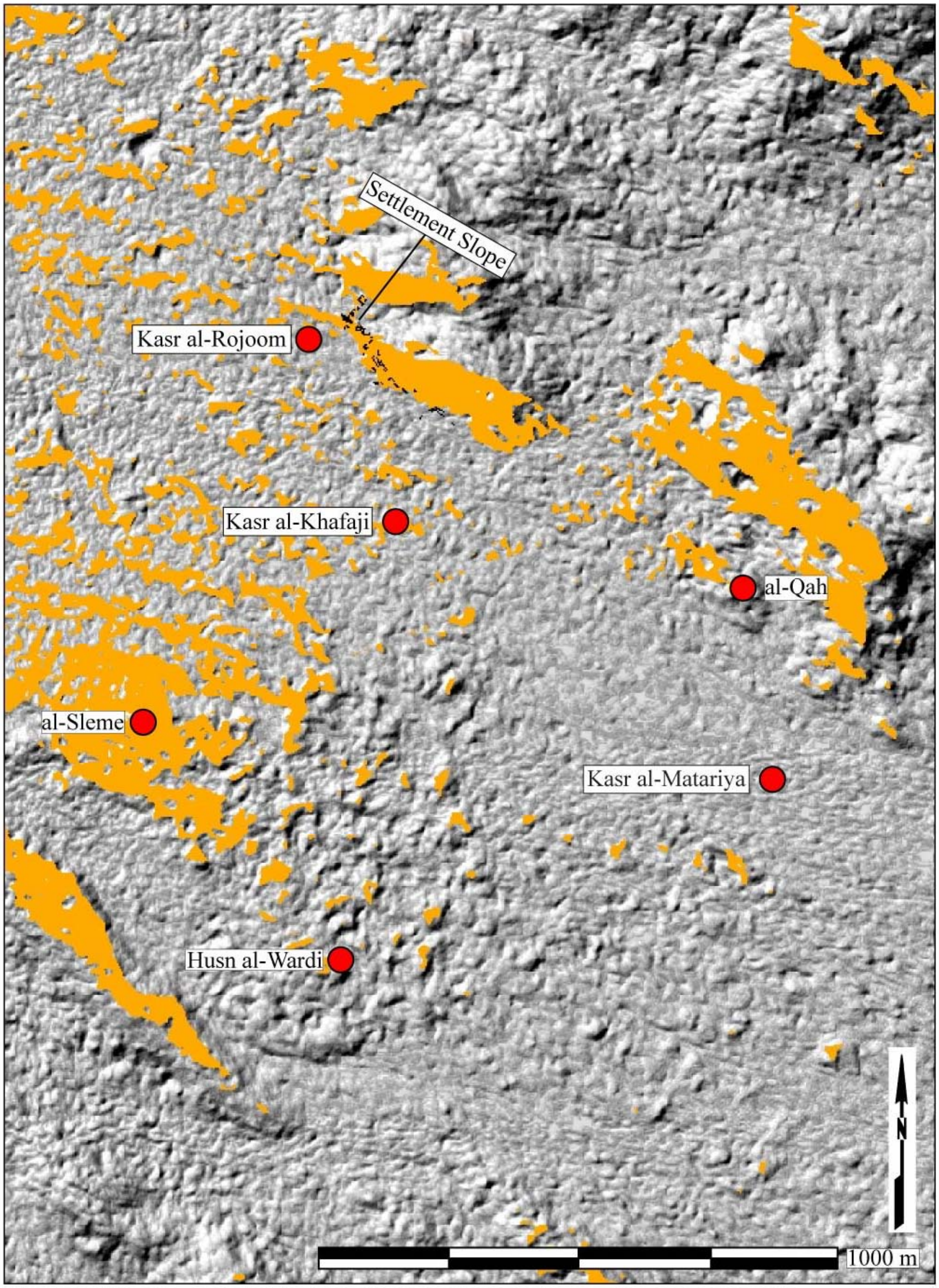

Fig. 5.17: Kasr al-Sleme viewshed.

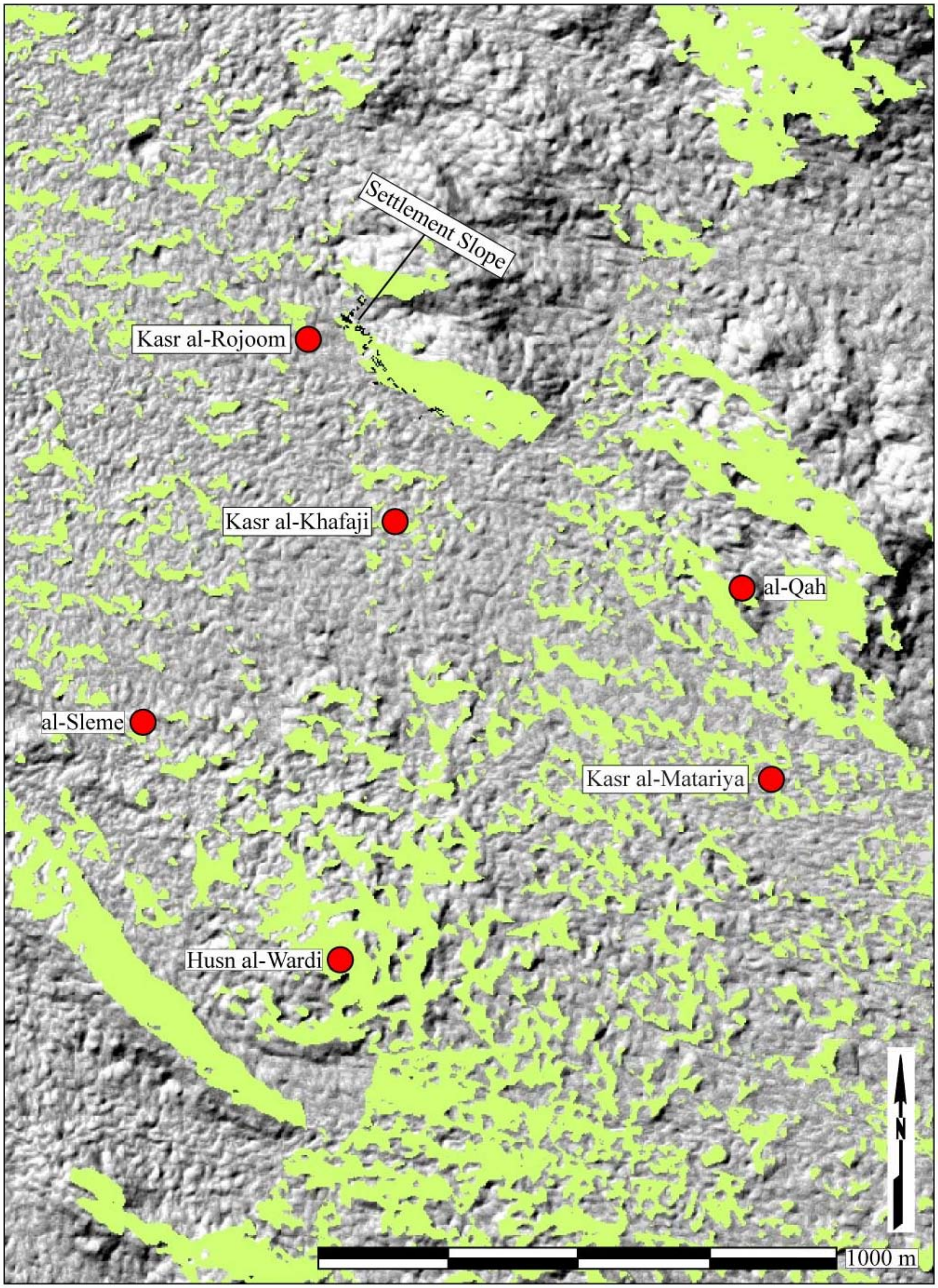

Fig. 5.18: Husn al-Wardi viewshed.

the southern towers, shows up brightly in both viewshed maps. This spatial organization suggests that the southern towers (and presumably their associated settlements) formed their own immediate visual network. Yet, the strategically chosen locations of both towers assured that a visual connection with the northern center at the Settlement Slope was maintained despite the distance (see Figs. 5.19 & 5.20).

Finally, the Late Umm an-Nar settlement of az-Zebah is separated from Bat's visual network by a distance of 7 km. The settlement is located on the flat of the Wadi ash-Shawi'ay and thus has a limited viewshed (see Fig. 5.21). As noted in **Chapter 4**, Zebah has no traditional Umm an-Nar tower associated with its settlement. However, modifications made to a rocky prominence in the nearby hills have been interpreted as suggesting that the rock spur itself may have served in place of a tower (Weisgerber 2007b; see also Döpper & Schmidt *forthcoming*). If this is true, the viewshed from the rock outcrop dramatically increases in scope and includes much of the wadi plain to the south and east, including the Zebah settlement (see Fig. 5.22). Similar to al-Khum in the Middle Umm an-Nar, az-Zebah is also located on a main wadi channel leading to Bat – here from the north. This tower-like feature would then have served a comparable function to Khutm's tower, in marking the location of the otherwise unobtrusive Zebah settlement to anyone moving along the wadi to or from Bat. While such a connection does not decisively link the community at Zebah to the larger center at Bat, it supports the probability that the two populations were to some degree socially and economically connected.

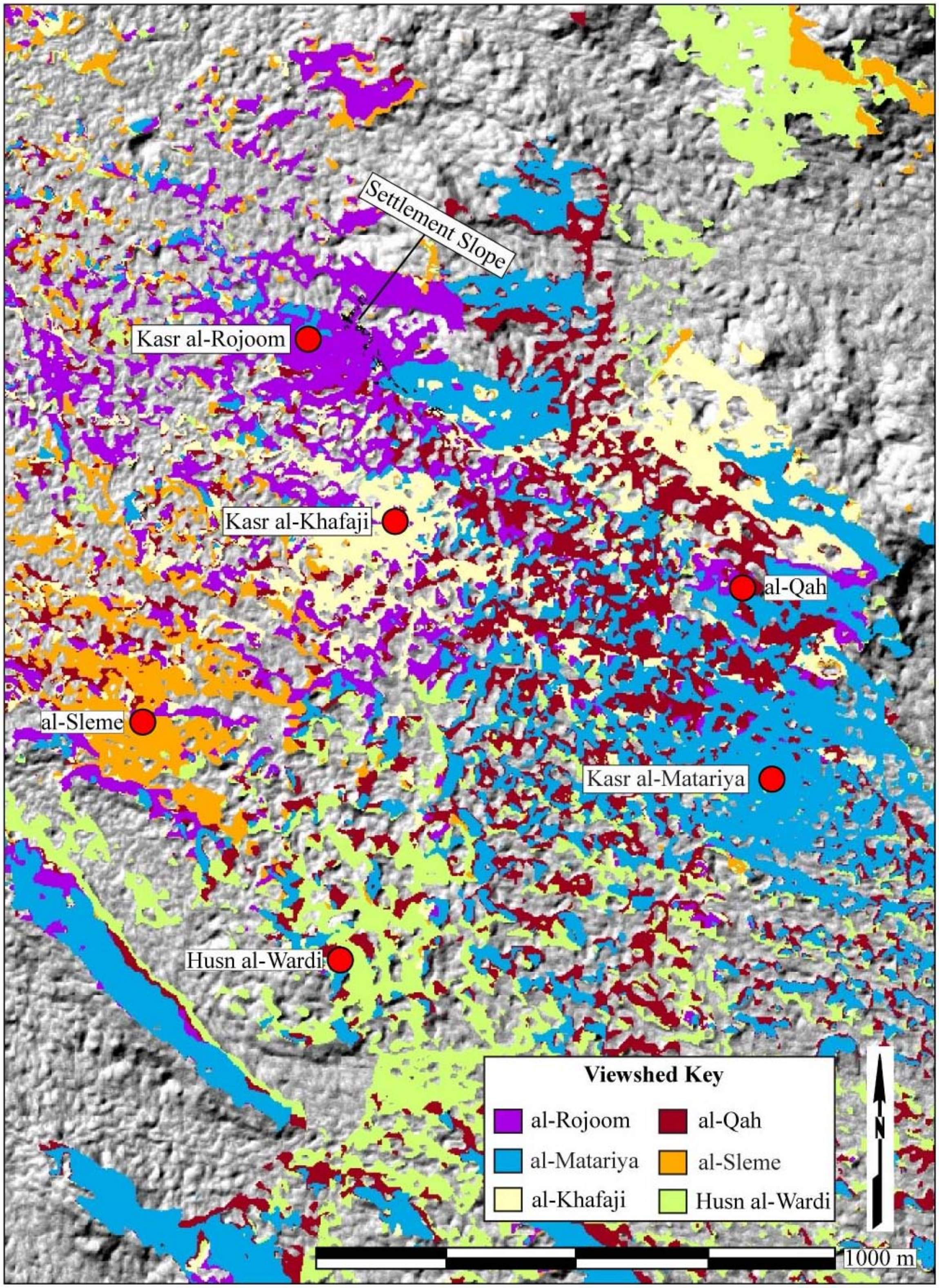

Fig. 5.19: Bat heartland's Late Umm an-Nar towers combined viewshed.

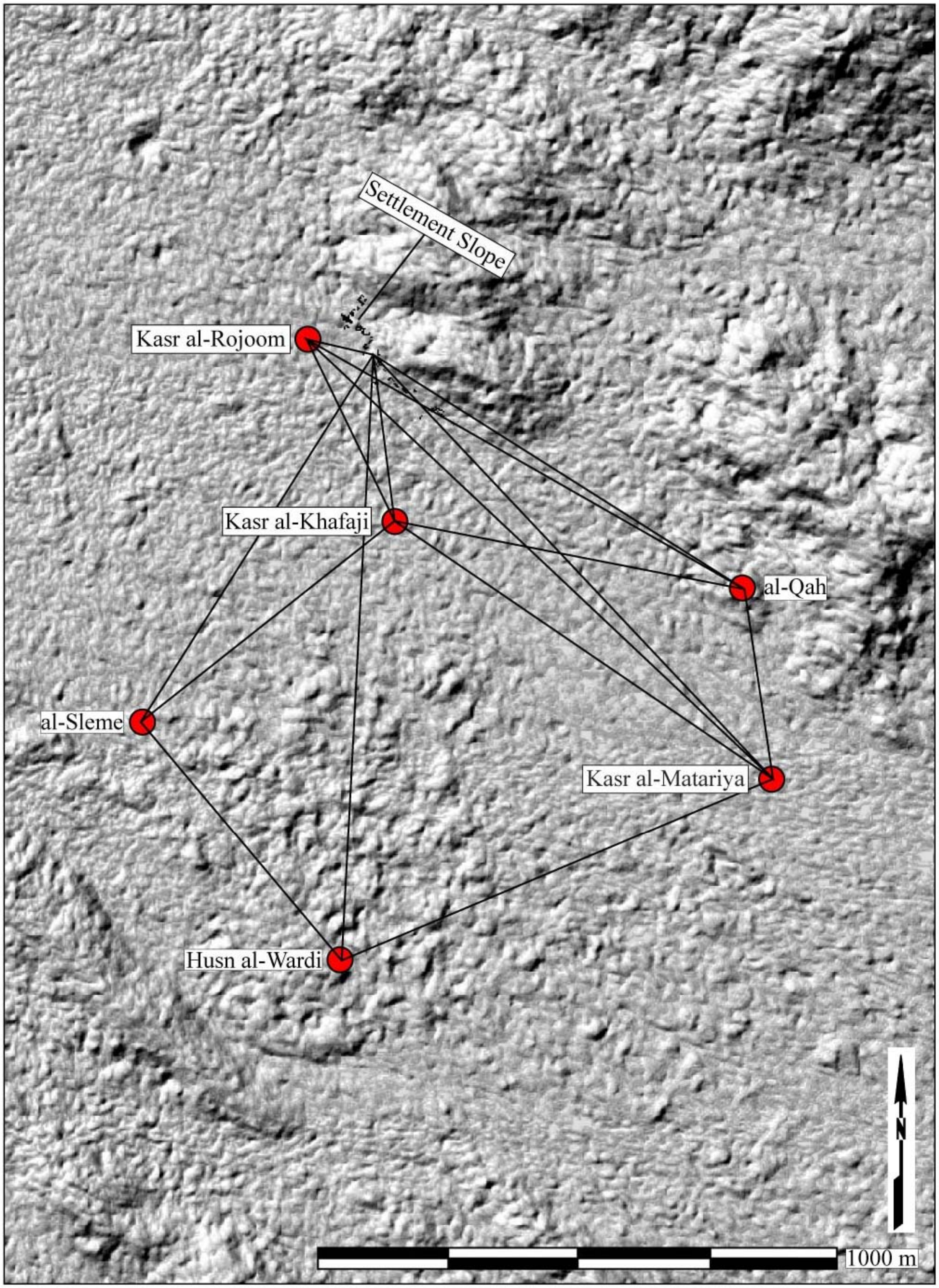

Fig. 5.20: Direct lines of sight between Bat's Late Umm settlements and tower monuments.

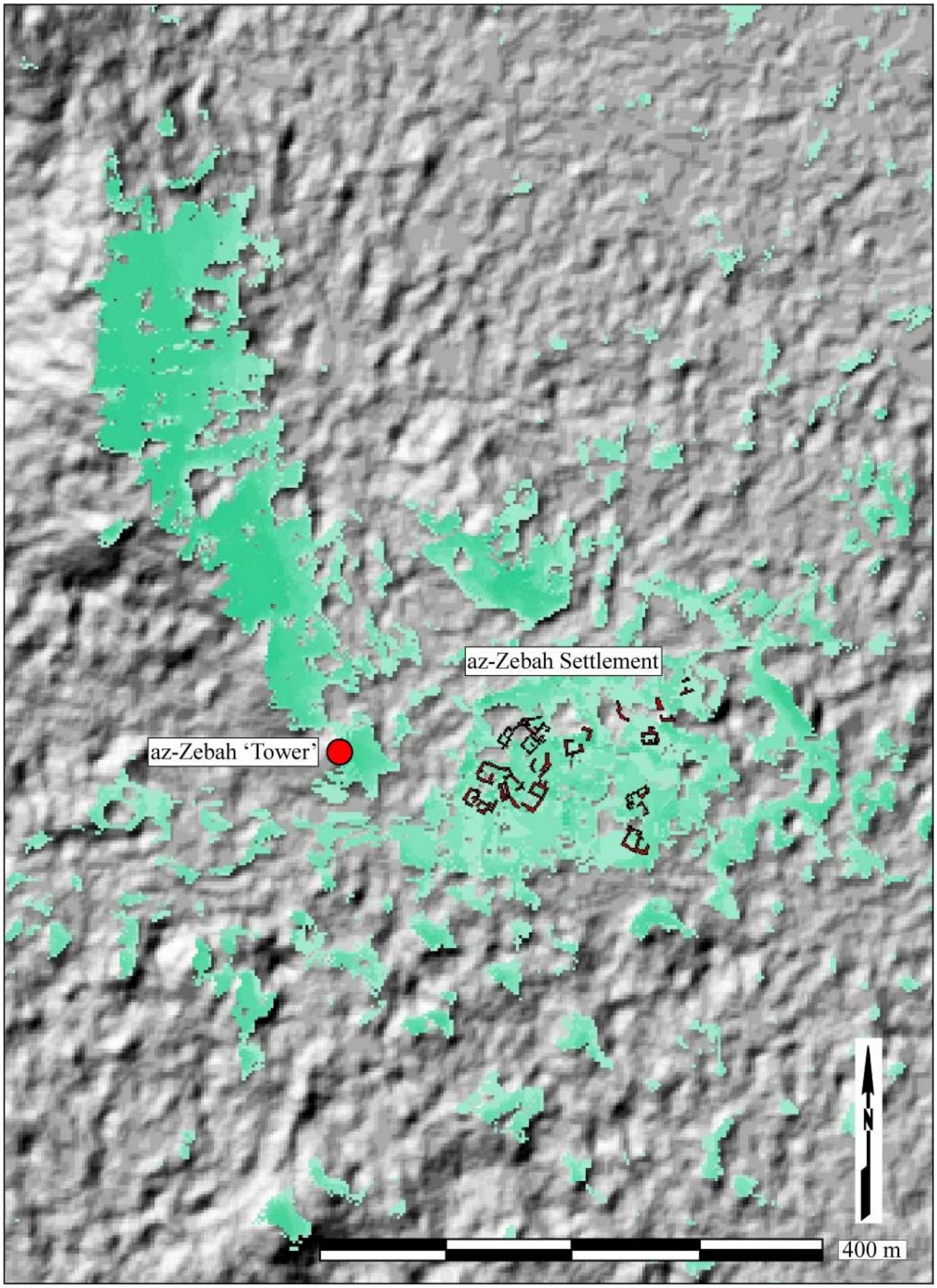

Fig. 5.21: Az-Zebah settlement viewshed.

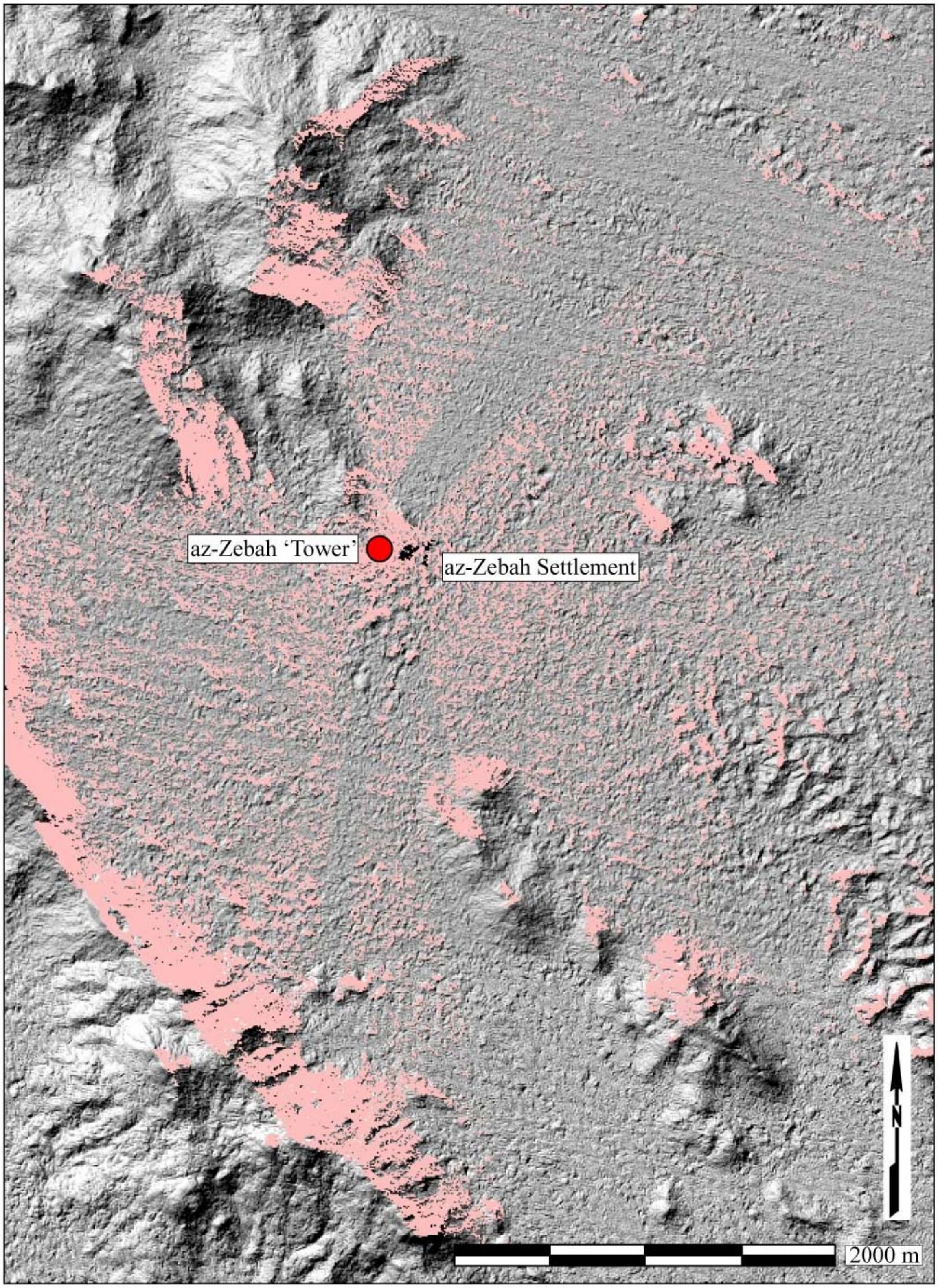

Fig. 5.22: Az-Zebah 'tower' viewshed.

5.3.3 Interpretation

To summarize the visual networks identified in this analysis, it appears that throughout the Umm an-Nar Period, the Bat heartland featured a collection of settlements that were linked by visual connections and at least two satellite communities more loosely affiliated with Bat through their locations on the landscape. In the Early Umm an-Nar, the visual network linked all three of Bat's known centers of activity (al-Matariya, the Settlement Slope, and al-Khafaji), although the Settlement Slope monument stood slightly apart from the towers on the plain. This visual network tightened in the Middle Umm an-Nar with the addition of the Settlement Slope's Rojoom tower on the edge of the plain. At the same time, the satellite community at al-Khutm marked its presence and affiliation with Bat by constructing its tower along the main route to the nearby center, although its settlement was strategically positioned out of site – possibly visually linking it with other as of yet unknown sites on the Wadi Hijr plain. In the Late Umm an-Nar, the large community on the Settlement Slope was surrounded by a network of four visible tower monuments that marked it as a clear center of social activity on the landscape. A second occupational center is likely to have existed in the south of the Wadi Sharsah in connection with the towers at al-Sleme and the Husn al-Wardi, although more research is need in this area. Additionally, the satellite community at az-Zebah may demonstrate a similar pattern to al-Khutm in marking its location along a major route to Bat through a modified rocky prominence that mimics a tower. While further research is necessary to verify or disprove assumptions made here regarding tower function, height, and visibility in relation to date palm groves, I tentatively conclude that the Umm an-Nar settlements on the Bat landscape were, to varying degrees, socially linked.

This visual network that existed between Bat's tower monuments and settlements has implications for interpretations of the site's Umm an-Nar community. Within the Bat heartland, the visual links between towers from the Early through the Late Umm an-Nar periods suggest that the occupants of their associated settlements identified as part of a single, large community. The maintained visual connections between active settlements/monuments and earlier, abandoned monuments such as Kasr al-Matariya further suggests that throughout the Umm an-Nar Period the Bat community continued to identify with the site's earlier populations (cf. Bender 2002; Steadman 2005; Tilley 2005; 2009). In contrast, while the settlements at al-Khutm and az-Zebah may be conceptually linked to Bat based on their locations along wadi routes that lead to the larger center, their physical and visual isolation indicates that they functioned as smaller, independent communities.

Finally, we must also take a moment to consider the social implications and lifestyles that Bat's Umm an-Nar settlement pattern suggests. Such a large site, albeit one with an uncertain population density, and high number of monuments might be interpreted as suggesting a society with an advanced degree of social complexity (cf. Earle 1997; Smith 2010; Wright 1978). Yet, as Cleuziou has convincingly argued (2003; 2009), the mortuary remains of the period do not provide the evidence of social stratification necessary to corroborate such complexity. A possible way to navigate between these two apparently conflicting data sources is to consider Phillips' suggestion that the different forms of Umm an-Nar settlements may indicate differences of lifestyle rather than of social class (2007:6; see also Méry & Tengberg 2009). Here we must also consider the location of sites on the landscape. The reliable access to water that marks Bat as an oasis site implies that the heartland settlements had at least some connection to agricultural activity and had the potential to support a year round occupation. The diversity of settlement locations in this core area, both on the Wadi Sharsah plain and in the northern hills, further suggests a variety of lifestyles or site functions (e.g., socioeconomic specialization) within the Bat heartland.[286] In contrast, the peripheral sites of al-Khutm and az-Zebah would have have seasonal access to water from their neighboring wadi beds, but do not appear to have enjoyed the same oasis environment as the Bat heartland. The residents of such settlements may have relied on a more modest level of agricultural production or, as suggested by Döpper and Schmidt for Zebah's community (2014), engaged heavily in animal husbandry.[287] While further research is necessary to verify such site functions, together these settlements would have contributed to the overall Umm an-Nar socioeconomic system.[288] The social organization and practiced ways of live within those settlements is further discussed in **Section 5.4** below and in **Chapter 6**.

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[286] Further detail of activity contexts with the settlements is necessary before conclusions can be drawn on the nature of such site functions. See **Chapter 6** for further discussion.

[287] See **Section 5.4.1** below for further discussion.

[288] Additionally, it is possible that any number of settlements whose location is not marked by a tower monument may have existed on the Bat landscape. In his survey of the Wadi Andam, al-Jahwari characterizes such putative sites as "agricultural settlements" (2009; al-Jahwari & Kennet 2008; 2010). At Bat, such sites would have been located on the flat of the Wadi Sharsah or Wadi Hijr plains, where they would now be buried beneath the accumulated sediment. These sites would add a further level of economic production and social complexity to the greater Bat community.

5.4 Settlement Space and Social Organization

With the established backdrop of a socially linked network of settlements stretching across the Bat landscape, we are now in a position to consider how the site's Umm an-Nar society was organized within those settlements. As stated above (see **Section 5.2**), Bat's settlements and the structures they are composed of served as the active stages where the day-to-day behaviors and interactions of their occupying communities were carried out. As such, we can use the spatial characteristics of those settlements, informed by both their architecture and the terrain on which they are situated, to better understand how Bat's Umm an-Nar society functioned. In this section, I explore the spatial structure found in each of the settlements on the greater Bat landscape with exposed architecture (e.g., the Settlement Slope, al-Khafaji, al-Khutm, and az-Zebah). By exploring the network of public and private spaces, corridors of movement, and community focal points, I reveal elements of their social organization and daily lived experience. I conclude with an assessment of Bat's structural evidence for a society that is increasingly segmented into sub-groups (possibly representing households) as the Umm an-Nar Period progressed.

5.4.1 Architecture and Social Structure

In recent decades, a variety of methods for assessing the social meaning(s) embedded in built space have been developed by environment-behavior specialists (cf. Bourdieu 1973; 1977; Giddens 1984; Hall 1974; Hanson 1998; Hillier 1996; Hillier & Hanson 1984; Lefebvre 1991; Rapoport 1990) and archaeologists alike (cf. Ashmore 2002; 2005; Fisher 2009; Flannery 2002; Hastorf 2009; Hodder 1991; Ingold 2013; Kent

1990; Knapp & Hall 2002; Preucel 2006; Ristvet 2011; Smith 2003; Steadman 2010; Tilley 1994; 2009; see also **Section2.3**). However, in order to strategically such apply socio-spatial observations to Bat's Umm an-Nar settlements, we must recognize the expectations and limitations of both the available information from the sites and the methods that I use to analyze them. Bat's settlements are often limited in the clarity of their architectural remains in ways that make them poor fits for many of the most widely used methods of spatial and structural analysis (cf. Cutting 2003; Hodder 1991). Yet, it is possible to adapt and simplify such conceptual models of spatial logic, such as that developed by Bill Hillier and Julienne Hanson (1984), in such a way as to make them applicable to fragmentary archaeological contexts (cf. Bafna 2003; Banning 2010; Fisher 2007; 2009).

In their comprehensive study on the social logic of built space, Hillier and Hanson propose a methodology for analyzing architectural layouts on two scales: 'alpha level analysis' of settlements; and 'gamma level analysis' of individual buildings. Strategies grown from the more well-known of these analyses (gamma level), such as access and proxemic analyses, use a building's architectural layout (i.e., the relative privacy of its rooms, chains of access, and lines of site within the built space) to determine the most likely patterns of human behavior the structure would have supported (cf. Banning 2010; Dovey 1999; Fisher 2009; Steadman 2000).[289] However, in order to provide meaningful social insight, the prescribed methods of applying these analyses require a certain degree

[289] See **Section 2.3** for further discussion.

of architectural clarity[290] that is often lacking at archaeological sites like Bat (cf. Bafna 2003:19; Cutting 2003; Hodder 1991).[291]

The less widely implemented alpha level analysis uses the organization of, and lines of site between, buildings within a settlement (i.e., the settlement's spatial syntax and axial lines) to assess probable qualities of the site’s social structure (e.g., allotment of resources, organization of power, division of basic social or household groups, etc.) (Hillier & Hanson 1984:82, 140-142). In contrast to gamma level analysis, alpha level analysis does not require a high degree of architectural coherency within individual buildings. It does, however, rely on broad horizontal exposures of settlement architecture, clear differentiation between open and enclosed space, and confidence that all features being considered date to the same period of use. While settlement-wide architectural plans are available for several of Bat’s settlements, we must recognize that it is often difficult to assure the contemporaneity of all features, especially those from surface contexts such as at al-Khutm and portions of the Settlement Slope and az-Zebah. Additionally, within such survey contexts, building outlines are in numerous instances too fragmentary for divisions between open and enclosed settlement space to be reconstructed. In the analyses that follow, I consider only the clearest sections of Bat’s architectural remains. For excavated contexts (e.g., the Khafaji settlement, the northwestern end of the Settlement Slope, and Haus III and IV at az-Zebah), I evaluate

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290 i.e., Complete building plans, accurate locations of doorways and interior architectural features, knowledge of second stories, locations of windows, etc. (Bafna 2003; Cutting 2003; Hillier & Hanson 1984).

291 As already discussed (see **Chapter 4**), the clarity of Bat’s Umm an-Nar settlement plans is limited due to a combination of excavation exposure sizes and fragmentary or disjointed preservation found in both surveyed and excavated architecture.

the settlement architecture in identified sub-phases where the remains are known to be contemporary.[292] For unexcavated architecture mapped on the modern ground surface (e.g., al-Khutm and the southeastern Settlement Slope hillside), I assume that all visible remains were active in the latest phase in which the site was known to have been occupied.

Although the accessible remains at Bat's settlements are not ideal for either alpha or gamma level analysis as originally envisioned by Hillier and Hanson, certain aspects of their methodology can be successfully applied. Key to both alpha and gamma level analyses is the concept that spatially structured systems of movement within a settlement or building reflect nested levels of social connections and divisions (Hillier & Hanson 1984:1-25). In their assessment of the structural layouts of numerous historical settlements, Hiller and Hanson identify eight "elementary syntaxes" that reveal such organizational qualities in the corresponding settlement's society (1984:78; see Fig. 5.23). These syntaxes are based on observed patterns of open (i.e., streets, alleys, plazas, etc.) and enclosed (i.e., buildings or walled courtyards) spaces within a settlement. While Hillier and Hanson developed these methods of spatial analysis with the intent of interpreting either single structures or whole settlements, archaeologists such as Edward Banning (2010), Brian Byrd (1994), among others,[293] have been quick to note that the same methodology can also be effective for analyzing settlement sections of various sizes

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[292] See **sections 6/3** and **6.4** for further discussion on the sub-phases of the Settlement Slope and Khafaji settlements. For the results of excavations at az-Zebah, see Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014.

[293] See also: Bafna 2003; Banning 1996; Cutting 2003; Düring 2001; Fisher 2009; Osborne 2012.

where the architecture, while imperfectly preserved, is particularly revealing.[294] Following this chain of reasoning, I use a simplified form Hillier and Hanson's gamma and especially alpha level analyses to identify spatial patterns in Bat's settlements comparable to Hillier and Hanson's 'elementary syntaxes.' I particularly consider chains of access through public (i.e. streets, squares, or otherwise unstructured settlement space), semi-private (i.e. courtyards), and private (i.e., independent buildings or independent units, such as apartments, within buildings) spaces within Bat's settlements.[295] I then use the identified syntaxes to offer a preliminary interpretation of Bat's social organization.

5.4.2 Social Logic of Bat's Settlements

Of Hillier and Hanson's eight elementary syntaxes, the forms relevant to the analysis of Bat's settlement layouts are syntaxes Z_1, Z_3, Z_5 and possibly Z_6 (see Fig. 5.23). Settlements composed of clusters of small, independent buildings with significant space between each structure, syntax Z_1, or of clumps of small, independent buildings all opening onto the same unstructured, mediating exterior space, syntax Z_3,[296] are indicative of societies that share resources throughout the community. In contrast, syntaxes Z_5, in which we see a number of structures arranged around and enclosing a central space or

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[294] In his study of Late Neolithic settlements in the Southern Levant, Banning observes that "it is typical… to examine these syntaxes at one of two scales, either individual buildings or 'globally' over whole settlements or neighborhoods; however, this is not essential and the elementary units of 'space syntax' can in principal be agglomerated over multiple scales (e.g., rooms groups into buildings, buildings into compounds, and compounds into neighborhoods)" (2010:15).

[295] With the exception of a few specified exceptions, I do not attempt to parse the syntax of building interiors because of insufficient architectural clarity. Rather, I specifically consider access to the buildings themselves.

[296] Buildings following a Z_3 syntax can either abut or be situated in close vicinity to one another (Hillier & Hanson 68-70).

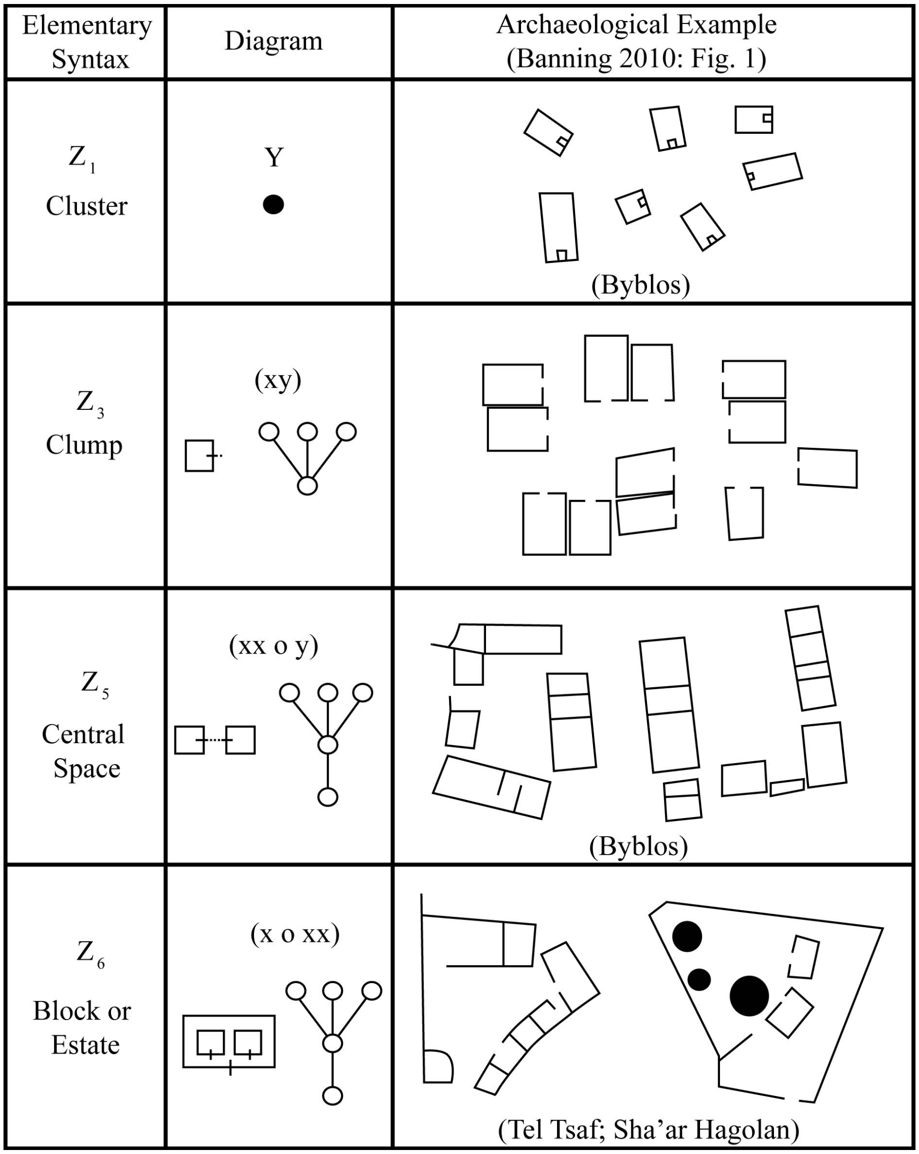

Fig. 5.23: Elementary settlement 'syntaxes' (after Hillier & Hanson 1984:78 and Banning 2010: Fig. 1). Notations for architectural units are as follows – 'x' is a closed cell; 'xx' is a group of closed cells; 'y' is an open space; 'yy' is a group of open spaces; and 'o' indicates the containment of these features.

courtyard,[297] and Z_6, where we see a number of structures within a formal enclosure wall, point to a society were resources are shared within sub-groups rather than throughout the community (Hillier & Hanson 1984:68-81; see also Banning 2010). If we examine Bat's

297 The courtyard house is an example of this type of spatial syntax (c.f., Bandyopadhyay 2006; Banning 2010:51; Horne 1994; Memorial & Brown 2006; Ragette 2003; Ujam 2006).

Middle Umm an-Nar settlements, we see built patterns that may fall into each of these broad categories.

Looking first at the most straightforward examples of architectural organization to be found in Bat's Middle Umm an-Nar phase, let us begin with the Settlement Slope's Structures SS1 and SS2. These rectangular buildings are set at some distance from one another[298] and do not appear to have been restricted by any formal or informal courtyard. In fact, in the case of Structure SS1, the building's doorway opens directly onto the street that lines the southern edge of the settlement (see **Section 6.3.1**).[299] In both cases, the buildings can be read as following Hillier and Hanson's simple Z_1 syntax (see Fig. 5.24). The contemporary Structures KA1, KA2, and KA4 at Khafaji, in contrast, fit the slightly more complex Z_3 syntax due to their positions on the site's tower foundation mound (see Fig. 5.25).[300] Anyone wishing to access these rectilinear buildings would first have had to gain access to the elevated surface of the tower mound, giving them an added degree of privacy. This fine parsing between Z_1 and Z_3 syntaxes is significant because the moderately more complicated Z_3 suggests a correspondingly more complex social use of that space (Hillier & Hanson 1984:66-81). Although a number of these buildings share

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[298] A third Middle Umm an-Nar building, structure SS4+ is known at the Settlement Slope. However, the extremely fragmentary condition of this building prevents it from being included in this analysis. Structure SS4+ is located several meters to the northeast of Structure SS1 and is unlikely to have effected the other building's syntax.

[299] The location of Structure SS2's doorway is uncertain, but may be through its eastern wall. See **Section 6.3.2** for further discussion.

[300] It should be noted that the location of the entrances to all Khafaji's settlement buildings are uncertain. It is not uncommon for doorways to not be indicted in Umm an-Nar stone building foundations (cf. de Cardi *et al*. 1976; Weisgerber 1980; 1981). In the latter phase of Khafaji's Middle Umm an-Nar occupation, the location of their doorways become more relevant due to the addition of the Connecting Wall and the newly enclosed courtyard (see this section below).

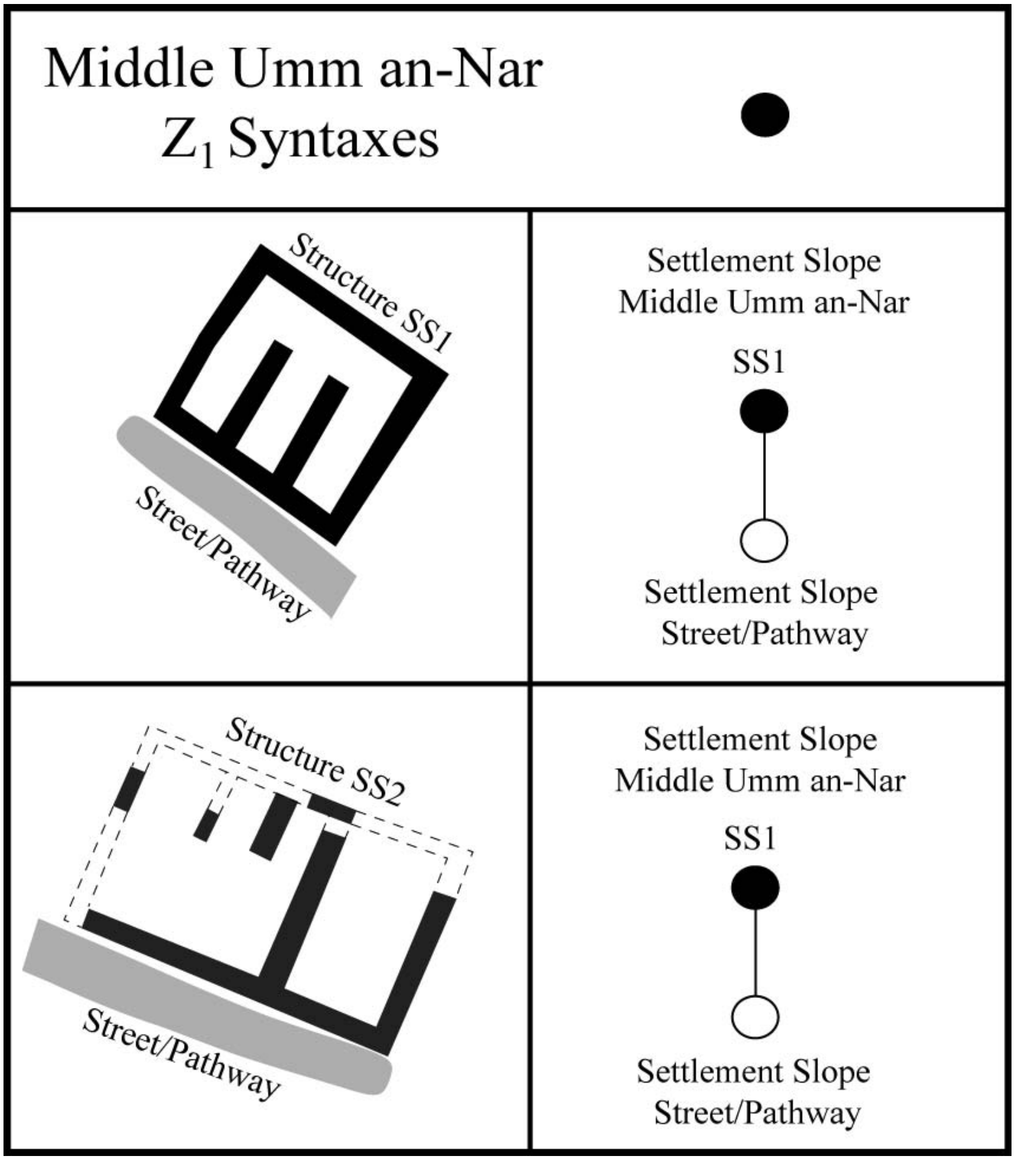

Fig. 5.24: Settlement Slope Middle Umm an-Nar Z_1 syntaxes.

comparable floor plans,[301] the social function(s) of the structures on Khafaji's tower foundation mound appear to have required an added layer of privacy.

The spatial organization of Bat's Middle Umm an-Nar settlements becomes more complicated when we consider the structural compounds that follow the Z_5, or possibly

[301] See the discussion of the semi-integrated building plan in regard to Structures SS1, SS2, SS4+, KA1, and KA4 in **Chapter 6**.

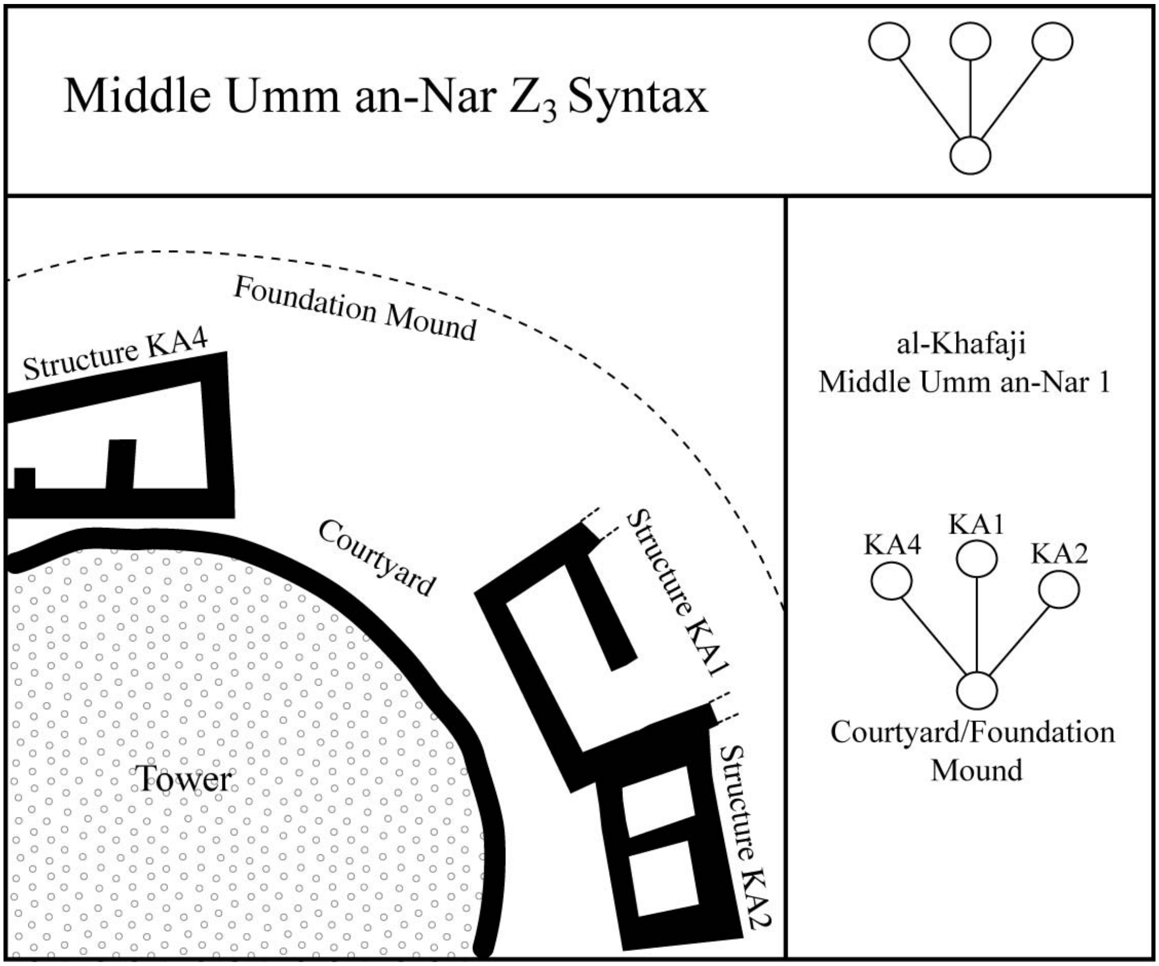

Fig. 5.25: Al-Khafaji Middle Umm an-Nar Z_3 syntax.

Z_6, syntax at the Khutm settlement and the later Middle Umm an-Nar phase of Khafaji (see Fig. 5.26). The Z_5 syntax creates a form of spatial organization that Hillier and Hanson describe as "distributed asymmetric" (1984:78), by which they mean that the spatial structure is determined by the combination of independent (but often abutting) structural units and an intermediate space (i.e., a courtyard) that controls access from the public into the private space. The Z_6 "non-distributed asymmetric" syntax creates a similar mediation of access to private space through a semi-private courtyard, but uses a formal enclosure wall to contain the independent structural units (Hillier & Hanson

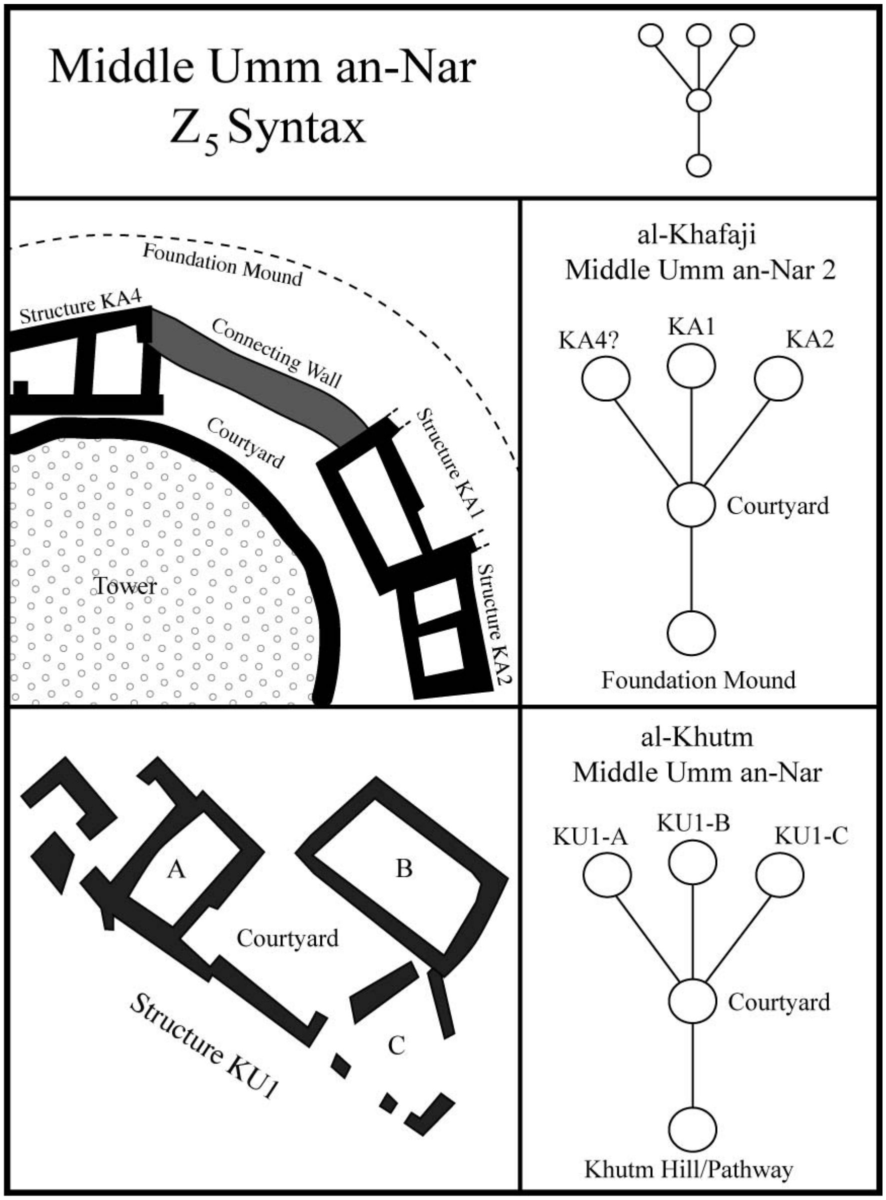

Fig. 5.26: Al-Khafaji and al-Khutm Middle Umm an-Nar Z_5 (possibly Z_6) syntaxes.

1984:78).[302] At the Khutm settlement, we see at least two examples of agglomerative architectural compounds (KU1 and KU5) stretching across the hillside. Of these, Structure KU1 is particularly clear. Although the coherence of Khutm's building layouts leaves much to be desired, the component units of Structure KU1 appear to be arranged

[302] The Z_6 formal enclosure wall may or may not incorporate structural units into its structure, as illustrated by Banning's example from Tel Tsaf (Banning 2010: Fig. 1; see also Fig. 5.23).

around a large, central courtyard, as is expected in a Z_5 or Z_6 syntax. A similar pattern can be seen in Khafaji's second Middle Umm an-Nar phase, when the construction of the Connecting Wall created the enclosed courtyard space that linked Structures KA1, KA2, and possibly KA4 (see **Section 6.4**).[303] In these scenarios (Khutm's Structures KU1 and KU5; Khafaji's Structures KA1, KA2, and KA4), the component structures both formed, and would logically have been accessed through, the shared courtyard. Such courtyards provide a semi-public space for outdoor activities (e.g., the food preparation, rubbish disposal, and social interaction that appears to have taken place Khafaji's courtyard; see **Section 6.4.4**) within an environment of controlled access and visibility (cf. Bandyopadhyay 2006; Banning 2010:73; Hawker 2006; Memorial & Brown 2006; Ragette 2003:59-60; Ujam 2016).[304] The presence of such shared, semi-private spaces implies that the users or inhabitants of the buildings linked by each courtyard shared a comparable social connection and represent sub-groups of the settlement's population.

Moving forward in time to the Late Umm an-Nar, the structural remains at the Settlement Slope demonstrate a similar trend of increasing syntactic complexity. Dispersed across the hillside are new examples of freestanding buildings of various sizes (Structures SS5, SS6, and possibly SS8) that, at first glance, appear to follow the Z_1 syntax that characterized the site in the Middle Umm an-Nar (see Fig. 5.27). However,

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[303] Based on the surviving architecture, it is unclear if Structure KA4 could have been accessed through the courtyard, and thus if it should be considered part of the same building syntax. An argument can also be made for interpreting this compound as a Z_6 syntax, as the Connecting Wall can be interpreted as a formal enclosure wall. However, given that the Connecting Wall is a clear later addition to a previously existing social and structural relationship between Structures KA1 and KA2, I suggest that the organic Z_5 syntax is a more fitting interpretation.

[304] See **Sections 6.3** and **6.4** for more detail on Bat's courtyards and their functional contexts.

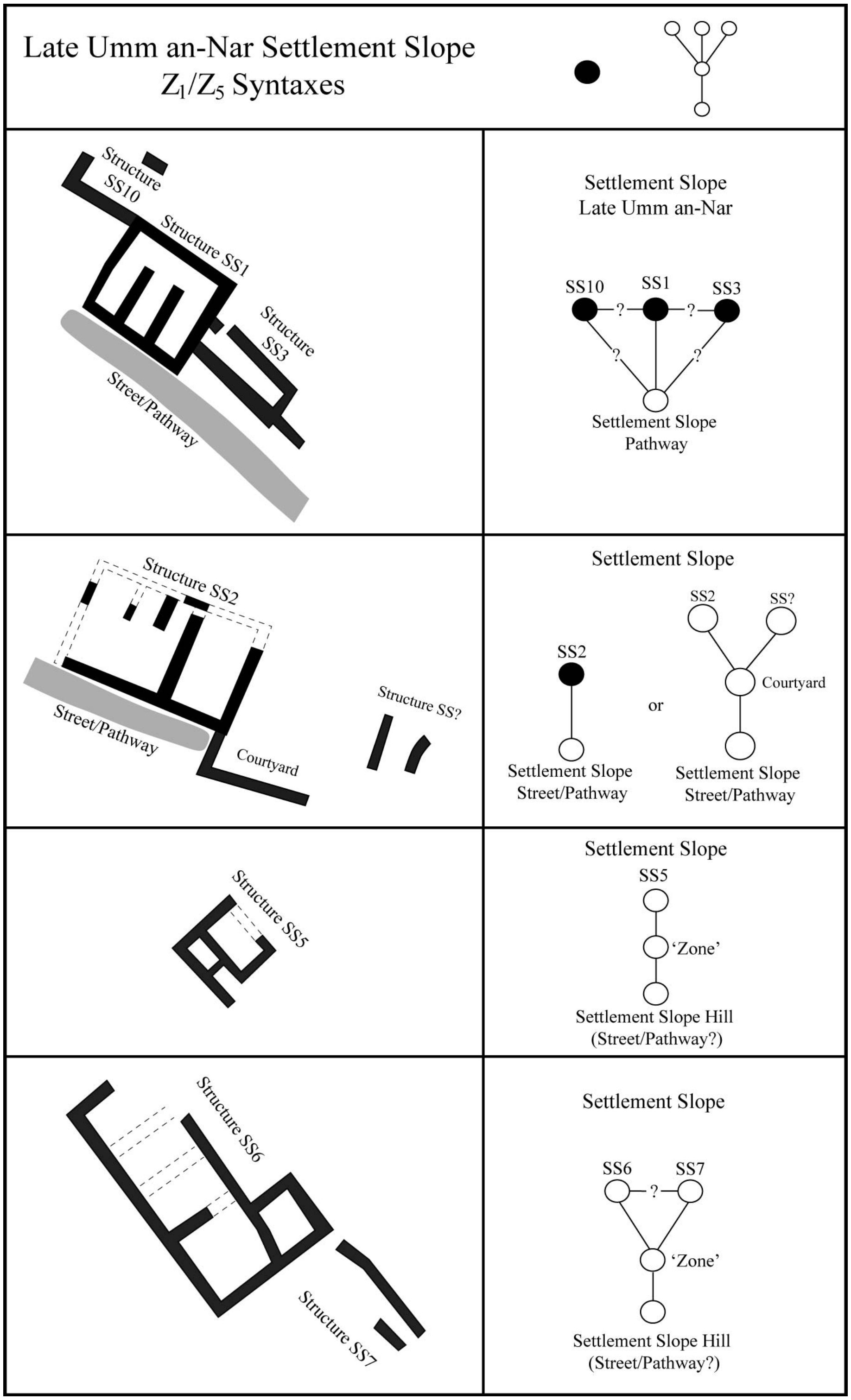

Fig. 5.27: Settlement Slope Late Umm an-Nar Z_1/Z_5 syntaxes.

wall fragments abutting the southeastern side of Structure SS6[305] rather suggest that this large building was part of a structural compound that is only partially visible from the surface.[306] Similarly, in the construction of two new buildings that abut the southeastern and northwestern sides of the earlier Structure SS1 (Structures SS3 and SS10)[307] we see how agglomerative compounds, such as those already discussed at al-Khum, were gradually formed over time. Although the syntactic organization of these buildings and the compounds they appear to form remain unclear (i.e., it is not apparent how the buildings were entered in the Late Umm an-Nar Period or if they shared a courtyard), it is tempting to interpret them as following the same Z_5 logic as the Khutm examples. The syntax of the Middle Umm an-Nar Structure SS2 is also altered during this period. The remains of a courtyard wall that dates to the Late Umm an-Nar (see **Section 6.4.2**) stretch between SS2 and the fragmentary remains of what is likely another building to the east, thus indicating the formation of yet another Z_5 or possibly Z_6 layout.[308]

However, before coming to any conclusion regarding the Settlement Slope's Late Umm an-Nar structural organization, we must acknowledge the likelihood that during this period (which appears to have been the most active in the hillside's occupational history) the site was more densely populated with buildings than the current visible

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[305] While fragmentary, these walls are considered Structure SS7.

[306] Karen Frifelt excavated a test trench through the center of Structure SS6 (her Site 1155), but found its interior contexts to be heavily damaged by erosion (1985:99).

Structure SS8 at the far southeast end of the Settlement Slope hillside is too fragmentary for a reliable syntactic analysis. For further discussion on the small Structure SS5, see **Section 5.4.3b** below.

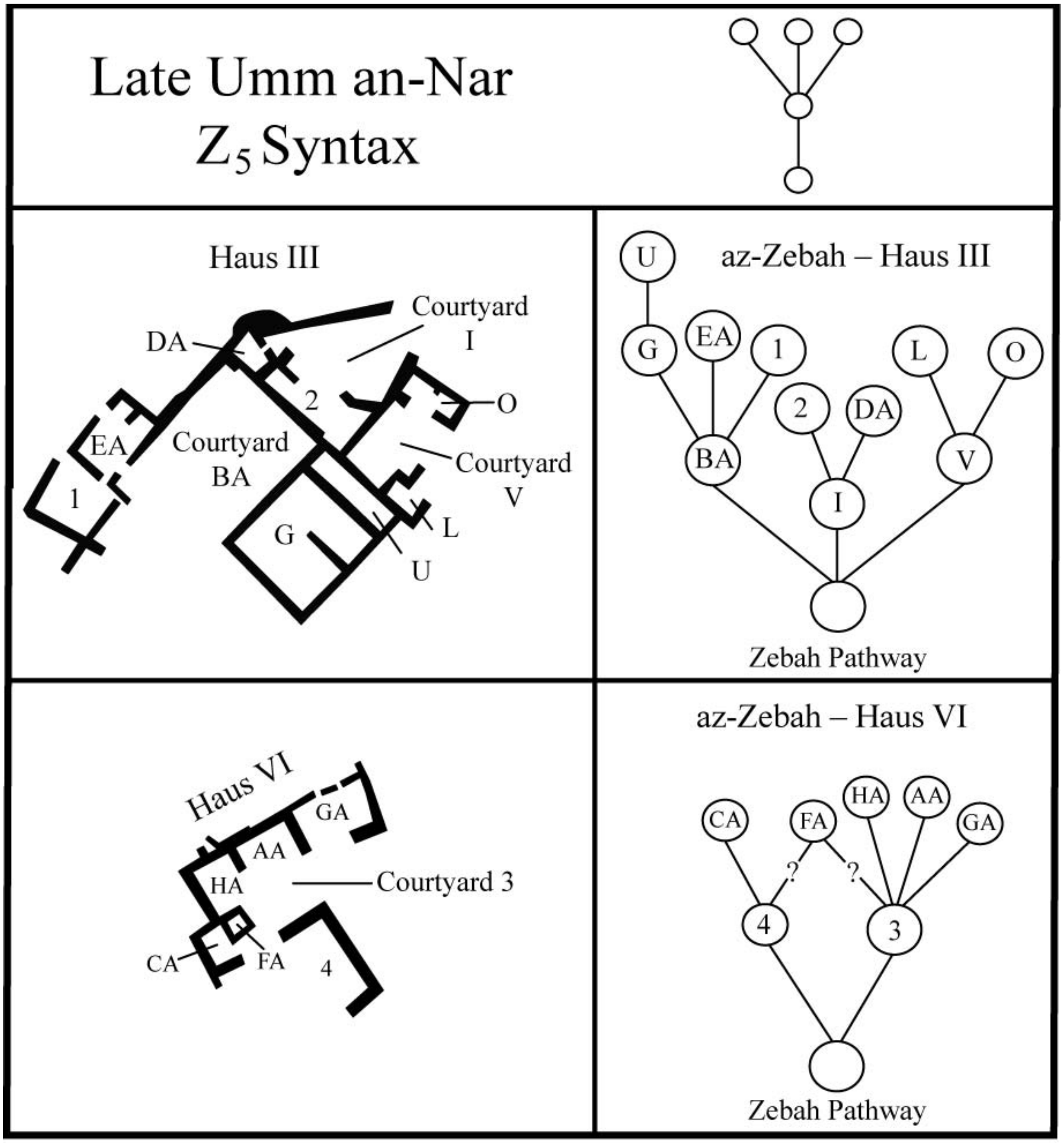
[307] See **Sections 6.3.1**, **6.3.3**, and **6.3.5** for details of these buildings and their contents.

[308] It is possible that the central courtyard that may link Structure SS2 and the fragmentary building to its east created a formal Z_6 enclosure.

remains suggest. Given the erosion and deflation that has effected much of the hillside, it is possible that only the sturdiest of the settlement's building foundations survive. Courtyards spaces are especially unlikely to be well preserved at the surface level. As a result, the Settlement Slope's Late Umm an-Nar alpha-level syntax may well have been more complex than I suggest in the summary above. Nevertheless, in spite of these uncertainties, I tentatively propose that the Late Umm an-Nar phase of this settlement was characterized by a syntactic complexity that grew from open-access Z_1 structures to agglomerative Z_5 compounds centered around access-restricting courtyards.

The importance of shared courtyard space in the Late Umm an-Nar is most clearly displayed at the settlement of az-Zebah (see Fig. 5.28). Here we see multiple examples of architectural units arranged around a shared central space (cf. Haus III and IV, Structures Z1, Z2, and Z3). The building known in the most detail, the excavated Haus III compound, incorporates five abutting structural units that together create the large, rectangular courtyard BA. In three instances (Courtyards V, I, and possibly G), the structural units of this compound also incorporate their own smaller and more private walled, courtyard spaces. Haus III's overall compound can therefore be read as a Z_5 syntax with its component units also forming nested Z_5 structures.[309] Based on the excavated remains of multiple hearths and large storage jars within Courtyard V, Döpper and Schmidt suggest that such courtyards could have served as temporary housing spaces for a semi-nomadic portion of Zebah's community (2014:77-78; Schmidt & Döpper

[309] It should be noted that Haus III's doorways are not always clear. However, it does appear that not every structural component of the compound could be accessed through the central courtyard. This change in the standard Z_5 chain of access results in a more complicated structural syntax and may thus represent a more complicated social group or set of groups. See **Section 5.4.2** for a more detailed discussion of Haus III's internal syntax.



* Lettered spaces refer to excavation by the German Mission to Oman (Döpper & Schmidt 2014b), numbered spaces are designated by the author.

Fig. 5.28: Az-Zebah Late Umm an-Nar Z_5 syntax.

2014:215-216). Their idea provides a useful and complementary alternative to Azzarà's interpretation of the central courtyards at Ra's al-Jinz as semi-private work spaces for extended family groups (2009; 2015; see also Ragette 2003 and **Section 5.2**).[310] In either possibility, the repeated use of the Z_5 syntax demonstrates the importance of this spatial structure for the basic social activity that took place at the settlement.[311] The predominance of such Z_5 organization in Zebah's compounds implies that the Late Umm an-Nar society at this site, whatever its composition, was spatially and socially divided into subgroups.

5.4.3 Environment, Movement, and Social Structure

Now that we have considered the structural organization of Bat's settlement, let us also bring into discussion the likely corridors of movement within each settlement and their implications for social interaction. In all of Bat's settlements, the organization of the surviving architecture suggests likely pathways of movement (i.e., features such as streets or alleys) and occasionally nodes of public intersection (i.e., crossroads or open spaces) that, in turn, indicate how settlement spaces were accessed and/or related to one another (Cavanagh 2001; Fisher 2009; Hillier & Hanson 1984:82-97; McMahon 2013; Ristvet 2011; Smith 2003).[312] However, the often-fragmentary state of Bat's architectural

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[310] It must be noted that we cannot casually assume that courtyard-based structural groups, such as the Z_5 syntaxes at al-Khafaji, al-Khutm, and az-Zebah, directly reflect extended family groups or households. Ethnographic research shows that a number of social organizations can function within the same spatial organization. In Horne's study of traditional villages in southeastern Iran, she encountered instances where a family owned buildings or single rooms in structural compounds throughout the village (1994:186-191). In contrast, Friedrich Ragette found an extremely close connection between central courtyard compounds and extended families in his study of tradition Arabian domestic architecture (2003:60; 83).

[311] It is also noteworthy that there are no clear examples of buildings following the Z_6 syntax at az-Zebah. Given the relative architectural clarity of this site, the absence of formal enclosure walls suggests that the possible Z_6 examples at Bat's other settlements should rather be interpreted as following the Z_5 syntax.

[312] The presence of street systems and formal community gathering locations can also be significant indicators of a centralized social organization (Ashmore & Sablof 2002; Banning 1996; 2010; Hillier & Hanson 1984:82-90; Osborne 2014).

preservation limits the precision with which we are able to identify such features (see access plans below).

A degree of this uncertainty can be overcome by also considering how each settlement's terrain may have limited possible paths of movement through the built space (i.e., locations were movement was not possible). Two of Bat's settlements (al-Khutm and the Settlement Slope) are situated on the sides of long, occasionally steep hills, where relatively narrow bands of the hillsides were used as settlement space. At points on both hills, the rugged terrain reaches slopes that I suggest would prevent casual movement across it and can, therefore, be used to inform our understanding of the possible pathways within the settlements. Questions regarding probable paths of movement across terrain in studies of ancient landscapes are typically addressed using the ArcGIS least-cost path analysis. This analysis identifies the route(s) between two points on a landscape that requires the lowest expenditure of energy (cf. Bell & Lock 2000; Harrower & D'Andrea 2014; Llobera 2000). However, the short distances between locations within Bat's settlements and the unclear purpose of the hillside location reduces the reliability of any least-cost path results (Conolly & Lake 2006:214-215; Llobera 2000:77).[313] Indeed, the positions of the Settlement Slope and al-Khutm structures on the steep hillsides indicate that the Umm an-Nar peoples were actively choosing to live on the uneven terrain. I suggest that the builders of these settlements used portions of the hillsides to limit access to and movement through sections of their built space.

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[313] While the distances between settlements on Bat's landscape is more fitting for least-cost path analysis, the uncertainties in the terrain of Wadi Sharsah and Hijr valley floors make such an analysis impossible.

In order to identify locations in Bat's settlements where the underlying terrain was used to prevent movement into/out of a space, I combined the site's architectural plans with the elevation data from the landscape DEM. I used the 'Slope' function available in ArcGIS to create graphics of each settlement that depict the degree of the slope at any given location beneath or surrounding their structural remains.[314] By overlying the settlement architectural plans and 1 m contour lines onto these slope graphics, I developed images that can be used to observe how the buildings and possible corridors of movement correspond to their underlying elevation and slope. Studies of energy expenditure over various terrains have found that the effort necessary to walk over uneven ground increases near-exponentially as the slope increases. Terrain becomes impassable to the average walker at gradients of 50º or greater (Bell & Lock 2000; Llobera 2000; Minetti *et al.* 1993; Rose *et al.* 1994:62; Tobler 1993; see also Fig. 5.29).[315] For the purposes of this dissertation, I consider any location in or around Bat's settlements with a slope of more than 50º as prohibiting movement. In the discussion below, I also consider the relative gradients of the settlement terrain as more or less accommodating to daily movement and activity.

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[314] Slope gradients for Bat's landscape were calculated using the Surface Analysis toolbox provided by ArcGIS software. This function uses the differences in surface elevation values in the Bat DEM raster to calculate a new raster that displays slope variations and values.

[315] Tested slopes range between 0º and 70º of incline. The easiest terrain to move across was found to be that with a downhill grade of 4-6º. The energy necessary to traverse inclined slopes increases sharply, although not in a linear manner, beginning on flat surfaces (0º incline) and plateaus at roughly 50,º at which point a slope is impassable to a human walker. Effort necessary for traversing downhill slopes also sharply increases at slopes steeper than 6,º although slightly more gradually than the uphill ratio, and plateaus at the impassable point of roughly 50º (Bell & Lock 2000; Foley 1977; Llobera 2000; Minetti *et al.* 1993; Rose *et al*. 1994).

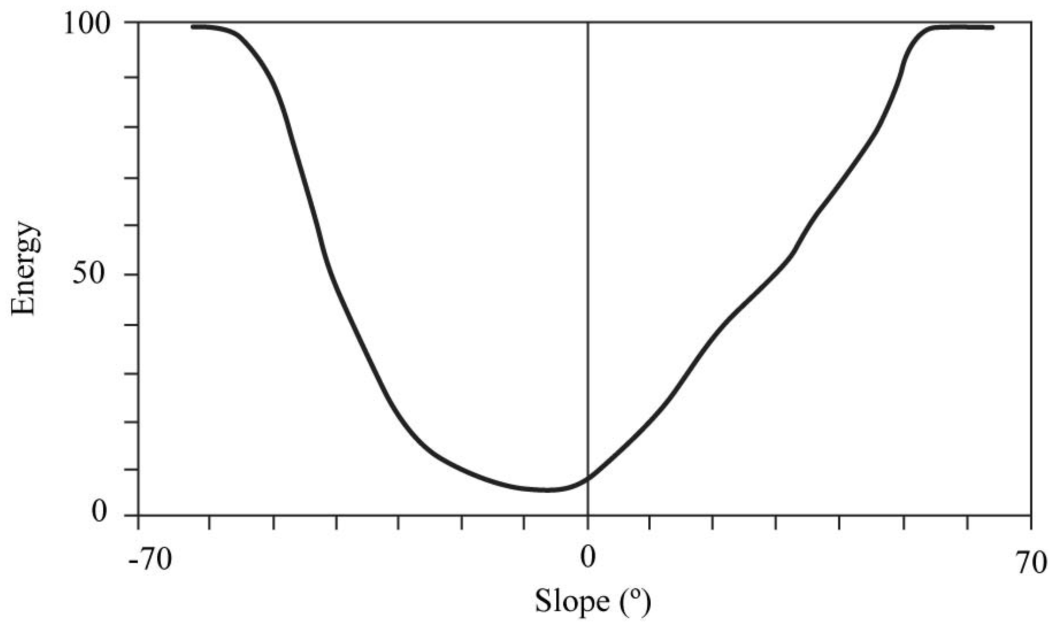

Fig. 5.29: Energy cost of traversing slopes (after Llobera 2000: Fig. 2).

The artificial terrain at al-Khafaji, formed by the tower's clay foundation mound, similarly places clear limitations on possible movement in the area immediately surrounding the tower. However, the variations in Khafaji's topography formed by the foundation mound are not represented in the GIS mode's DEM.[316] Therefore, instead of generating a slope graphic through GIS, I manually created the corresponding graphic using the excavation records. The small scale of the excavation exposure and relative consistency of the foundation mound's incline make such manual representations manageable and reliable. Only at az-Zebah, where the settlement is situated on the flat of the wadi plain, are we restricted to using only the architectural remains to reconstruct paths of movement. By recognizing such lines of movement and communication within Bat's settlements, I am further able to identify and interpret socio-spatial units and their

[316] As discussed above, the DEM is constructed using satellite imagery of the modern ground surface. Therefore, the sediment that has accumulated around and above Khafaji's tower foundation mound obscures the feature on the DEM.

connections. With the remainder of this section, I identify and analyze pathways of movement in each of Bat's settlements and consider their implications for social organization.

5.4.3a Middle Umm an-Nar

In regard to the Middle Umm an-Nar settlements situated on hillsides (i.e., the Settlement Slope and al-Khutm), the GIS-generated images are particularly revealing. In spite of the limited exposure for this period at the Settlement Slope, several preliminary observations can be made based on the site's combined architectural and topographic information (see Fig. 5.30). We can see that the known Middle Umm an-Nar Structures SS1, SS2, and SS4+ are situated between elevations 458 and 461 m above sea level on a hillside that ranges between 457 and 501 m above sea level. The terrain surrounding all three buildings, while far from level, is less steep than that at similar elevations elsewhere on the hillside to the south and west. The space between Structures SS1 and SS2 features the sharpest slope in this portion of the hillside and reaches gradients of up to 32.º This terrain, while passable, is challenging to both traverse and build upon. During the Early Umm an-Nar occupation of the site, this area featured a series of ditches surrounding the tower monument that stepped up the hillside.[317] While these ditches were filled by the Middle Umm an-Nar, the area does not appear to have been utilized for settlement activity. Overall, the Middle Umm an-Nar structural organization shows an unsurprising preference for the flat patches of the Settlement Slope hillside that is continued in the

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[317] The function of these features is uncertain (cf. Mortimer 2016:132-136; see also **Chapter 4** of this dissertation). However, similar features surrounding other towers have been interpreted as fortifications or obstacles intended to impede movement toward the monument (cf. Cable & Thornton 2013; Cattani *et al*. 2017; Cleuziou & Tosi 2007:147; Frifelt 1976; 1985; Weisgerber 1981).

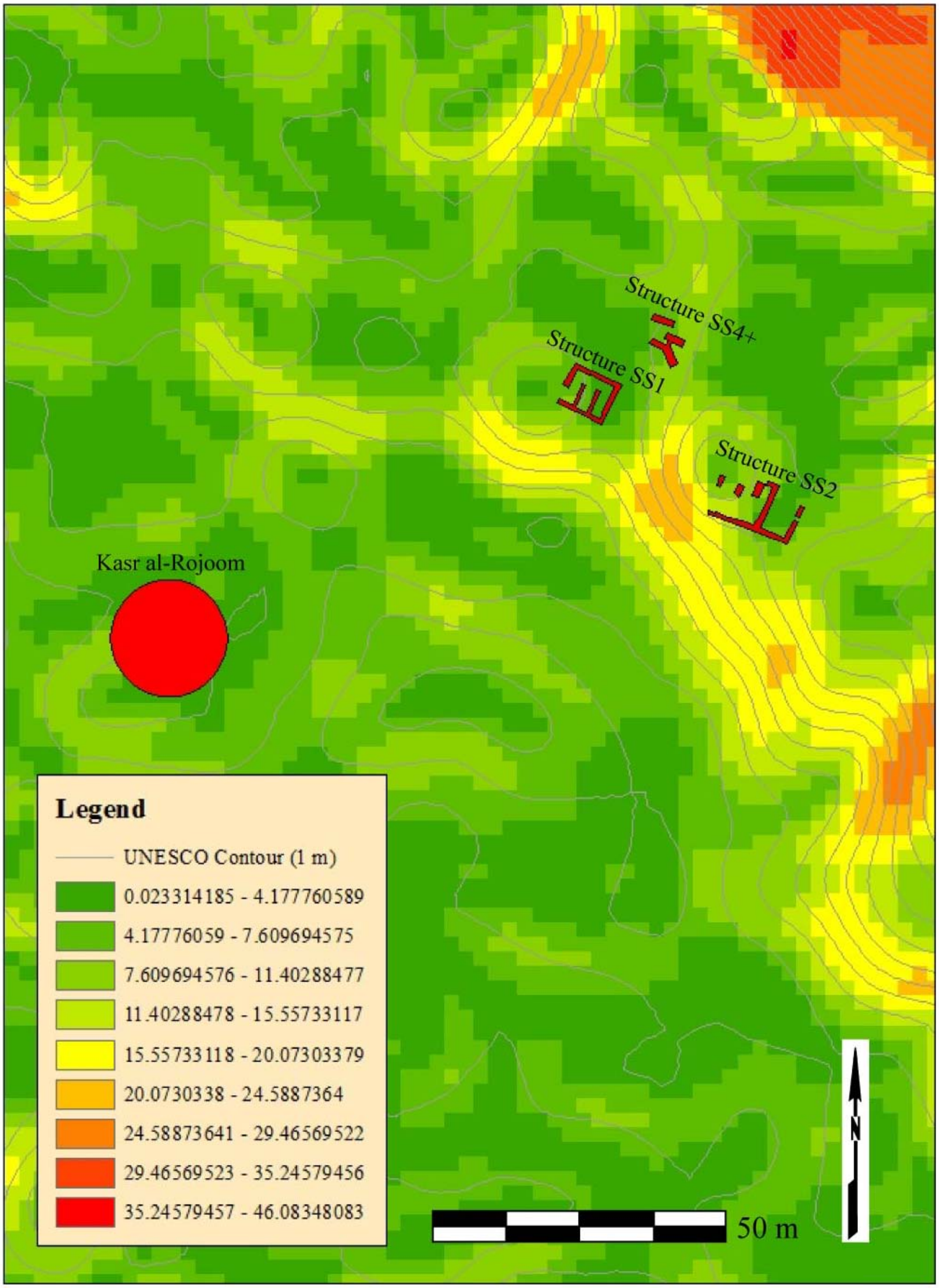

Fig. 5.30: Middle Umm an-Nar Settlement Slope terrain slope.

subsequent Late Umm an-Nar.

The orientation of the Settlement Slope's Middle Umm an-Nar buildings in relation to the hillside is also worthy of note. All three buildings follow the same alignment, which is similar to, but slightly at variance with, the natural slope of the hillside.[318] This is particularly clear in Structures SS1 and SS2 (see Fig. 5.31). Such a shared alignment indicates that, during the Middle Umm an-Nar, the Settlement Slopes builders organized their structures according to a predetermined alignment that was influenced by but slightly different than that suggested by the natural terrain. In the excavated area to the south of Structures SS1 and SS2, excavators encountered a flat gravel surface that is interpreted as a street or formal pathway. If we accept this interpretation, the linear street feature, which runs along the southern faces of Structures SS1 and SS2, can be considered a pathway linking the two buildings. This feature likely also served to orient the placement of the two preserved buildings, as well as influencing the alignment of the more fragmentary Structure SS4+. Additionally, all three buildings are within clear view of the Kasr al-Rojoom tower, which is located a short 75 m to the southwest on the wadi plain. While any interpretation drawn from such a limited excavation sample must be made with caution, the Middle Umm an-Nar occupation on the Settlement Slope appears to be organized according to the pathway that facilitated movement between buildings while also emphasizing the view of the nearby tower monument.

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318 Although it is possible that the topography of the hillside has changed since the Bronze Age, the preservation of architectural remains on the surface and raw limestone that composes the majority of the hill make this unlikely.

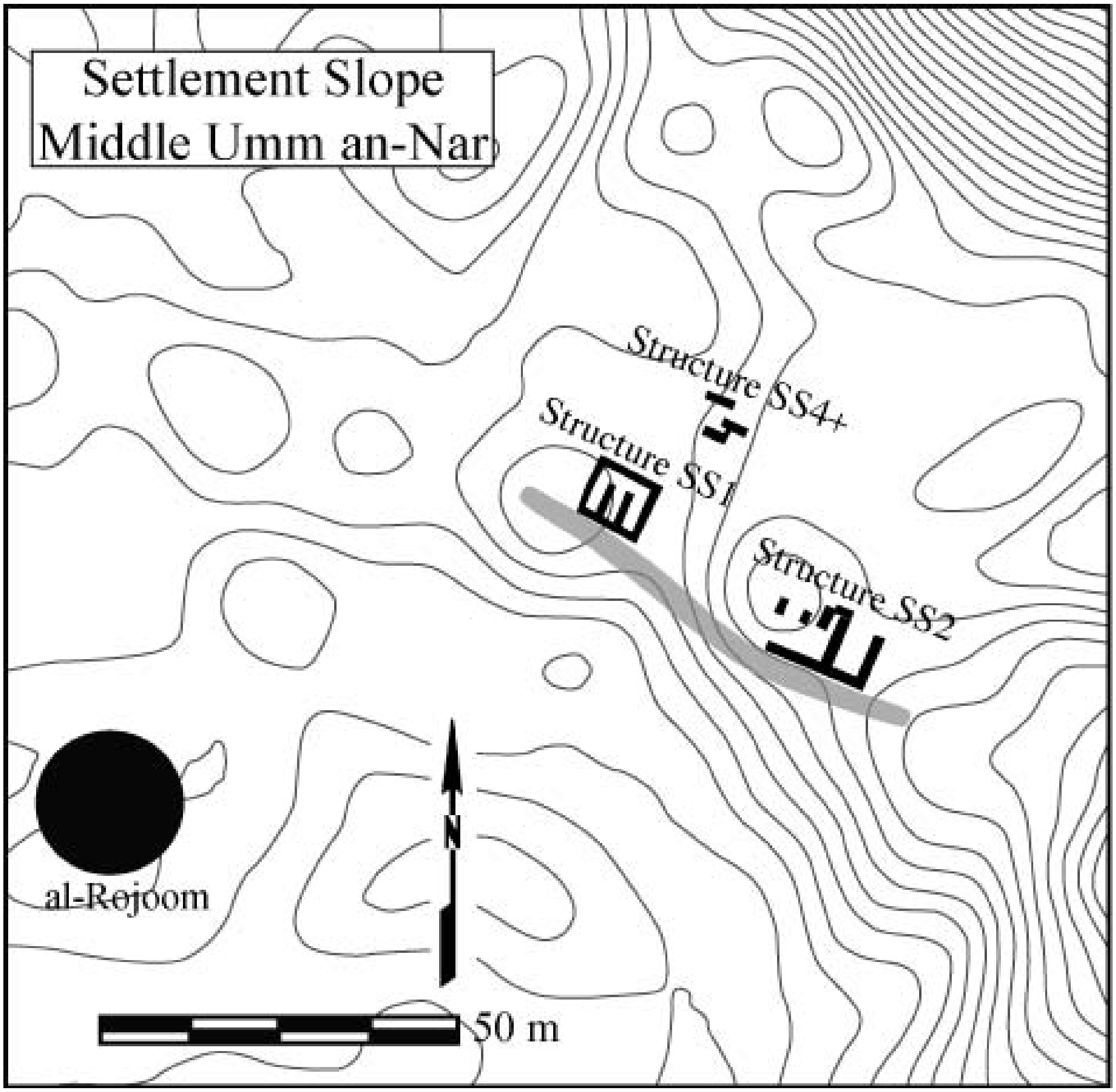

Fig. 5.31: Middle Umm an-Nar Settlement Slope access plan.

Moving on to al-Khutm (the second of Bat's hillside settlements), we find a larger sample of Middle Umm an-Nar settlement architecture built onto an even more dramatic terrain than we did at the Settlement Slope (see Figs. 5.32 & 5.33). Al-Khutm's buildings cluster between 442 and 449 m above sea level on a hillside that reaches from 439 to 455 m. Beginning at the northwestern end of the settlement, we see the large Structure KU1 complex built into an extremely steep (45º+) bedrock outcropping. This limestone ridge

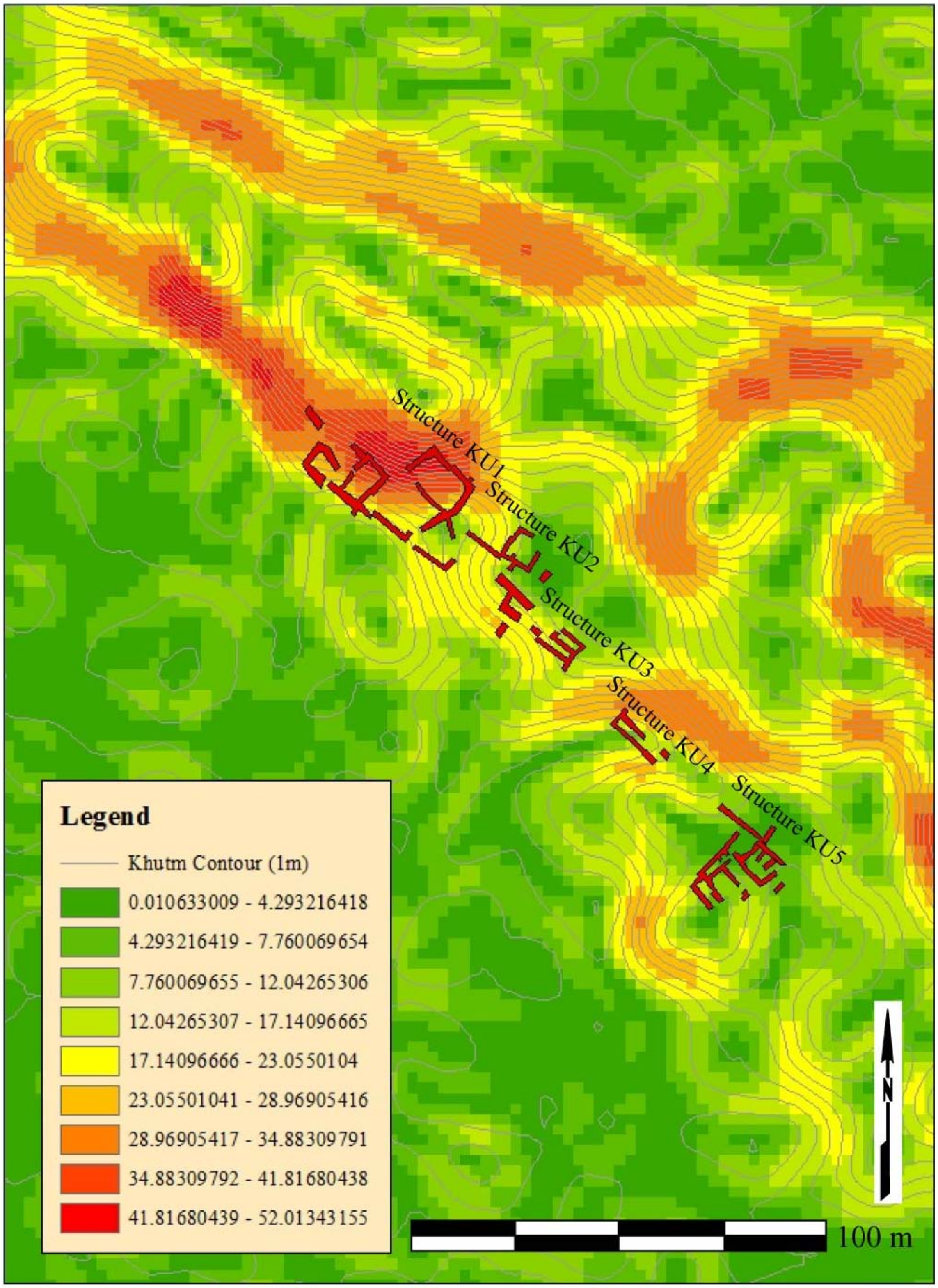

Fig. 5.32: Middle Umm an-Nar Settlement Slope terrain slope.

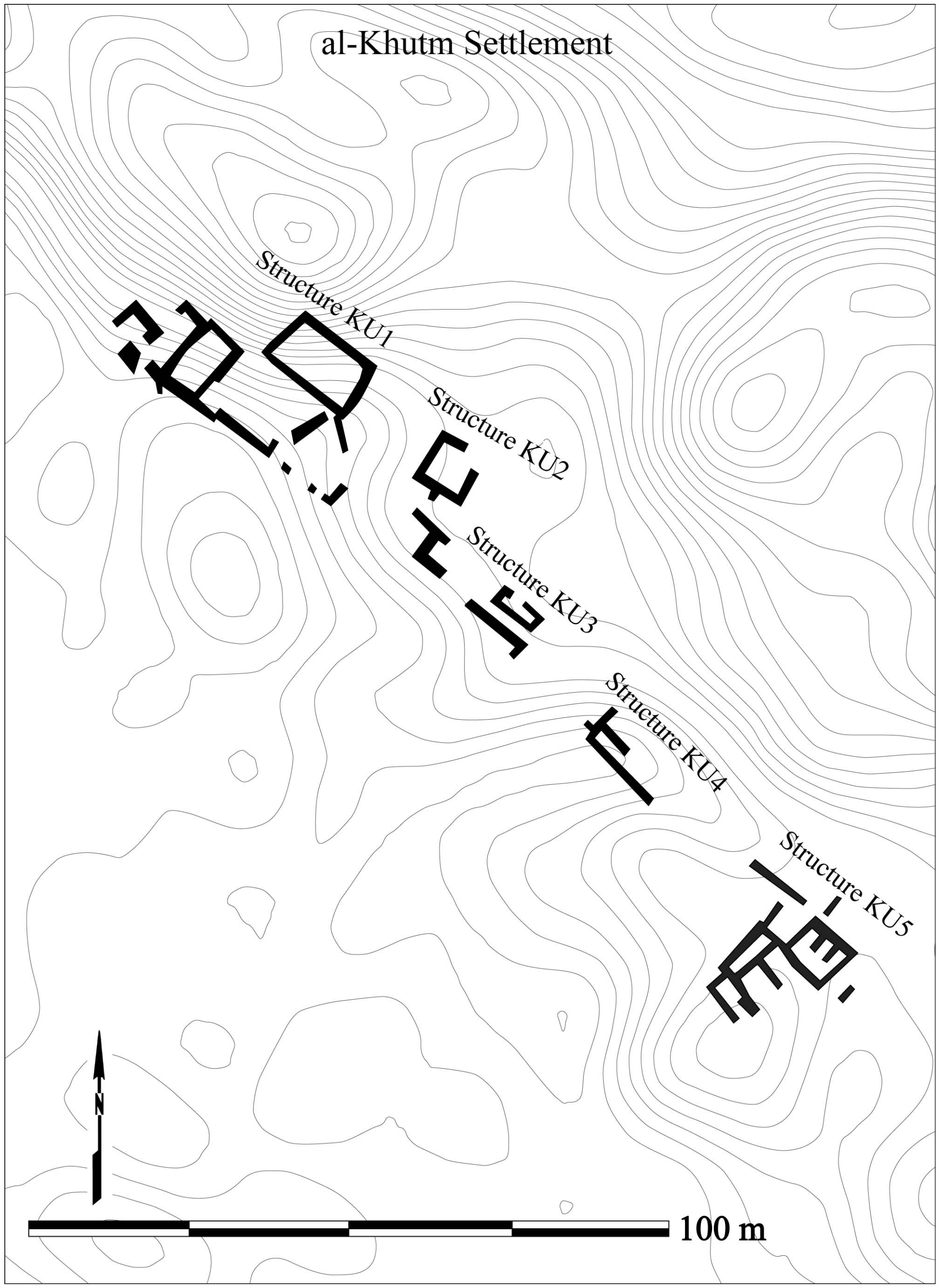

Fig. 5.33: Al-Khutm access plan.

marks the known northern extent of the settlement's built space and provides a clear example of how the Umm an-Nar builders engaged with the natural terrain. Here, the stone wall foundations are integrated with the steep bedrock to make otherwise unusable portions of the landscape part of the architectural structure. Further to the southeast, Structures KU2 and KU3 are built on the southern edge of a wide area of gentle, easily traversable (17º or less) terrain. While the majority of this gradual slope appears to be un-built, the open area would be extremely accommodating for cultural activity associated with the two neighboring buildings. Any activities carried out in this area would be assured a degree of privacy by the much steeper (up to 45º) ridges that define it to the east and north. If this area, indeed, served as a semi-private space or type of 'natural courtyard' then it would have spatially and functionally linked Structures KU2 and KU3. To the south of these buildings, the hill drops off more sharply, marking the southwestern extent of the preserved settlement space.[319]

Shifting even further to the southeast, we see the surviving fragments of al-Khutm's Structure KU4 nestled on a small, flat strip of land between two narrow but steep ridges. Despite its fragmentary state, we can be relatively confident that Structure KU4 was not linked, structurally or functionally, with Structure KU3 to the west due to the bedrock ridge that runs between them (this ridge also helps to define the flat area north of Structure KU3). In contrast, it is probable that Structure KU4, in its complete form,[320] continued along the relatively level ground to the southeast and possibly interacted with the sprawling Structure KU5 compound. Structure KU5 is situated on the flattest expanse of al-Khutm's settlement hillside, where the accommodating terrain undoubtedly allowed for the compound to expand over the course of its use.

[319] It should be noted that there is some suggestion that Structures KU2 and KU3 continued further to the southwest, over the steeper terrain. The sharper hillside makes it more likely that the portions of the buildings originally existing on this portion of the hill would have suffered more intensely from erosion damage than those further up the hill. Additionally, the heavy accumulation of silt on the wadi plain beyond this slope may conceal further preserved settlement remains.

[320] The northwestern corner of Structure KU4 is built into the rough bedrock of the ridge.

While al-Khutm's settlement plan and topographic features do not explicitly imply the existence of a formal organizational system, we do see what appears to be three interaction zones: the large Structure KU1 compound in the northwest; Structures KU2 and KU3 along with the naturally defined space on the hillside above them; and Structures KU4 and KU5 at the southeastern end of the settlement. Similar to the layout at the Settlement Slope, the most likely option for a corridor of movement linking these three zones is the relatively flat band of terrain following the natural contours of the hillside just southwest of the built area. Although no pathway has yet been identified, the uniform alignment of the settlement architecture, occasionally at variance with the hill slope, does suggest that such a feature may have existed at al-Khutm as well as at the Settlement Slope.

The topography and circulation found at the Middle Umm an-Nar settlement at al-Khafaji presents different interpretative challenges than do those at the Settlement Slope and al-Khutm. Rather than being situated on the slope of a natural hillside, the known rectilinear structures are located in the immediate vicinity of the tower and rest on the flat surface of the monument's clay foundation mound (see Fig. 5.34). In the excavated areas, the top of the foundation mound was found to extend between 7 and 9 m beyond the perimeter of the tower monument before sloping sharply downward at a maximum (impassible) incline of roughly 60.º While the bottom of the mound has not yet been identified, excavations in the northern half of the site reached depths of over 2 m and clearly capture the clay mound in profile.[321] This arrangement formed a slightly

[321] For details regarding the results of this excavation, see Nathan *forthcoming*.

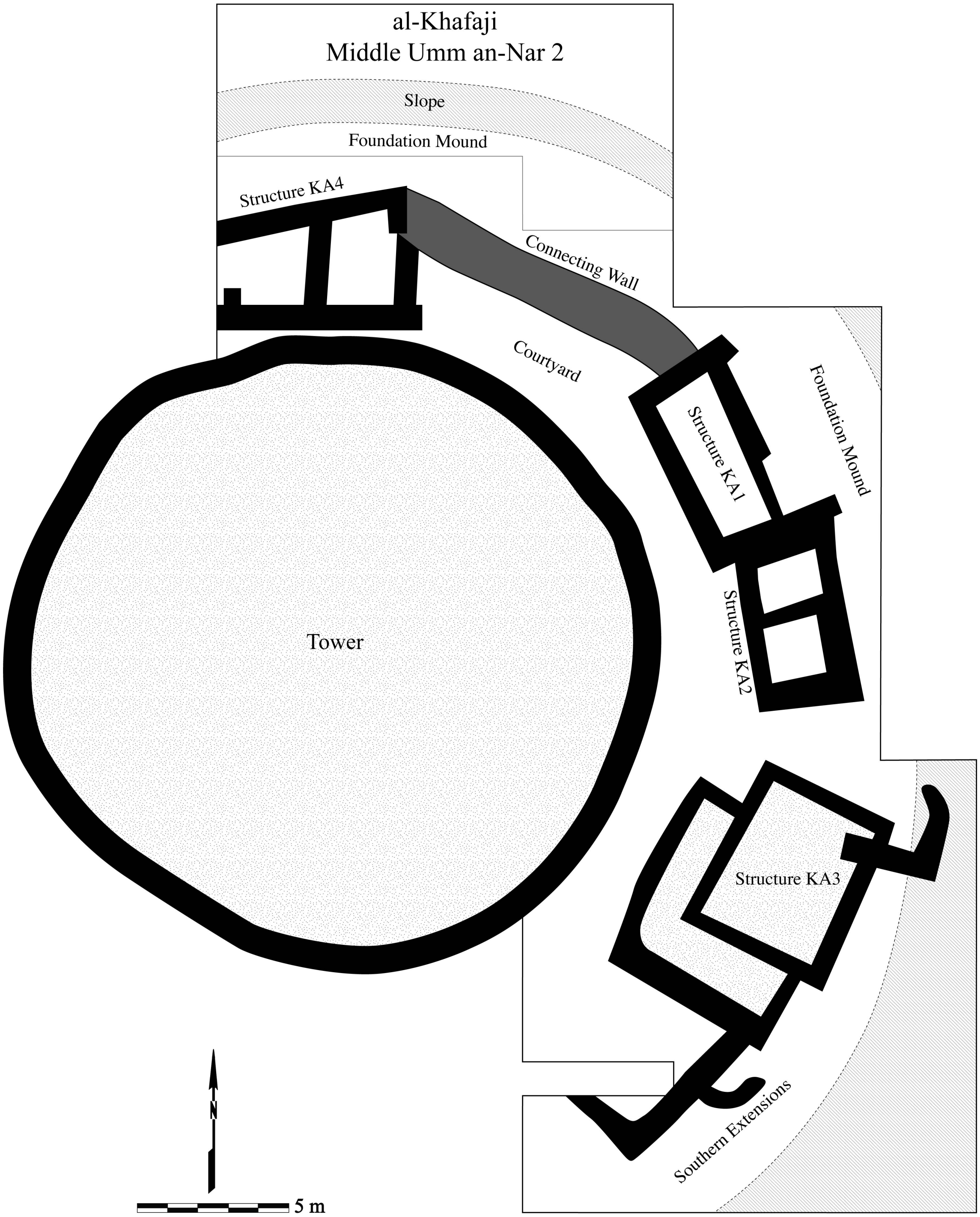

Fig. 5.34: Al-Khajfai terrain slope and access plan. Foundation mound edge estimated.

irregular, circular band of space surrounding the tower on which the settlement's rectilinear architecture was constructed. Approximately 50% of the foundation mound's surface[322] has so far been excavated.

Circulation in the northeastern quarter of Khafaji's tower foundation mound was moderated by two features: a 2-3 m wide pathway that lined the outer edge of the mound and the courtyard space between Structures KA1, KA2, KA4, the Connecting Wall, and the tower. Patches of cobbled surface along the northern faces of Structure KA4 and the Connecting Wall suggest that the pathway lining the edge of the mound likely featured a formal, paved surface. This corridor of movement would have connected the courtyard compound with the monumental platform (Structure KA3) to the south and the unexcavated contexts to the west.[323] The courtyard, as discussed above (see **Section 5.4.2**) provides a semi-private outdoor space that links Structures KA1, KA2, and possibly KA4.[324] The addition of the Connecting Wall to Khafaji's Middle Umm an-Nar compound visually and structurally separated the activity area(s) within the courtyard from anyone on the outer pathway. These two circulation features (i.e., the pathway and the courtyard) thus create two corresponding tiers of privacy at Khafaji: the visible, public outer ring of the foundation mound[325] and the enclosed, semi-private space of the courtyard.

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[322] This percentage presumes that the contexts to the west of Khafaji's tower follow a similar pattern as those to the east.

[323] This cobbled surface and the Connecting Wall compound, consisting of Structures KA1, KA2, and the courtyard enclosed by the Connecting Wall, both date to Khafaji's second Middle Umm an-Nar phase. See **Section 6.4** for further discussion of Khafaji's occupational sequence.

[324] It is unclear if Structure KA4 would have been accessed through the Courtyard, directly from the cobbled pathway, or from an as of yet unknown space to the west.

[325] While it is unclear what portion of Khafaji's Middle Umm an-Nar population would have had access to the tower foundation mound, the outer pathway would have been visible to anyone in the surrounding vicinity.

Al-Khafaji's final known rectilinear building, the Structure KA3 Platform to the south of Structure KA2, is not clearly connected to the northern settlement buildings but may suggest how the tower mound itself was accessed. The stone foundations of the Platform are built into and slope up the upper edge of the clay mound.[326] The mudbrick surface of the Platform, now largely degraded, was accessed via a large, stone ramp that runs steeply (20-25º) up, over the structure's northeastern end. This stone ramp appears to extend beyond the edge of the tower foundation mound, where it turns sharply to the north and continues below the extent of excavations. A similar curving approach or pathway has recently been identified leading onto the platform feature at the Khutm tower (Cattoni *et al*. 2017). Such sloping pathways may have thus been a common method for controlling access to and from tower monuments.

The southeastern section of Khafaji's foundation mound, south of the Structure KA3 Platform, is characterized by several walls with unclear purpose(s). The cobbled pathway that controlled movement around the northeastern section of the mound does not appear to continue in this area. Rather, we see an enclosed space immediately next to the Platform that has yet to be fully excavated and an unstructured exterior space to the south that features several activity areas (see **Sections 4.3.2** and **6.4.5** for further detail). While the full extent of Khafaji's tower mound and its associated structures is yet to be explored, the impression given by the available remains is of a monumental settlement

[326] The Platform's stone foundations are set at an approximately 20º slope as they move up the southeastern side of the tower mound. It is unclear if the Platform's mudbrick superstructure would have been similarly sloped. The original height of that mudbrick superstructure is indicated by the preserved height of the stone ramp that runs over the Platform's northeastern corner and presumably provided access to the structure's surface. A similar platform feature has recently been excavated at the Khutm tower (Cattoni *et al*. 2017). The surface of this feature clearly slopes from the surrounding ground surface upward toward the tower and is interpreted by its excavators as a ramp that provided access to the monument.

center with strictly controlled access via the Structure KA3 Platform. The rectilinear structures occupying the area to the north and east of the tower represent how the use of this space gradually developed over the course of the Middle Umm an-Nar in an increasingly formalized, private manner.[327]

To briefly summarize what we have observed so far, during Bat's Middle Umm an-Nar occupation we find three examples of settlements that engage with their topographic setting to limit and structure their circulation patterns. The occupants of both the Settlement Slope and al-Khutm used the natural bedrock formations of their perspective hillsides to further define their settlement spaces beyond what was possible with man-made walls. By strategically building next to ridge lines or sharp slopes, the Middle Umm an-Nar inhabitants enhanced their control over access to and movement within certain areas of their settlements.[328] The effect, most clearly seen at al-Khutm, was to create semi-private zones of both built and unbuilt space that, at the Settlement Slope and possibly Khum, could be accessed from a public pathway that lined the lower edge of the settlement. The clear view of Kasr al-Rojoom from the buildings on Settlement Slope also suggest a close connection and sense of identity between the monument and settlement. The contexts at al-Khafaji contrast with the hillside settlements in terms of scale and orientation on the landscape, but demonstrate a similar

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[327] It should also once again be noted that there may well be more settlement in the area surrounding the foundation mound that has not yet been discovered. In all likelihood, the settlement contexts so far excavated at Khafaji represent only the monumental center of a significantly larger site.

[328] The hillside locations of the Settlement Slope and Khutm settlements may also have served practical purposes, such as elevating the buildings above the level of flash floods. However, such motivations do not account for the syntactic similarities between the hillside settlements and those situated on the flat of the wadi plain. I therefore suggest that the Umm an-Nar communities engaged with their surroundings in order to achieve the desired spatial logic for their settlements.

use of the topography to structure and limit movement. The narrow band of flat space available on the outer edge of Khafaji's tower foundation mound placed strict limitations on movement through the settlement. This already limited space was then further adapted to its social function through the arrangement of its various structures and the eventual addition of the Connecting Wall. While the settlement organization at Khafaji clearly differs from that of the Settlement Slope and al-Khutm, we can see similarities in all three settlements' spatial and environmental logic. By strategically engaging with their underlying topography, Bat's Middle Umm an-Nar sites each crafted an organizational system that used a single artery or main corridor of movement on the outer edge of the settlement to provide access to its various controlled zones, compounds, or individual buildings.

5.4.3b Late Umm an-Nar

Shifting focus now to Bat's Late Umm an-Nar settlements, we see a close continuation of this same spatial logic at play out across the length of the Settlement Slope but a notably different approach to settlement organization taken at az-Zebah. At the Late Umm an-Nar Settlement Slope, Structures SS1 and SS2 expand in into compounds[329] but maintain the same alignment that we noted in the Middle Umm an-Nar (see Fig. 5.35 & 5.36). Almost directly south of Structure SS2, the gradual northwest-southeast hillside veers to the south and a bedrock outcrop alters the overall angle of the hillside. This change in the hill's topography serves to spatially divide the site into two

[329] Structure SS1 grows into a possible compound with the addition of Structures SS3 and SS10 to its northwest and east. Structure SS2 similarly grows with the addition of a courtyard wall that possibly links the buildings with a now fragmentary structure to the east (see **Section 5.4.2** above).

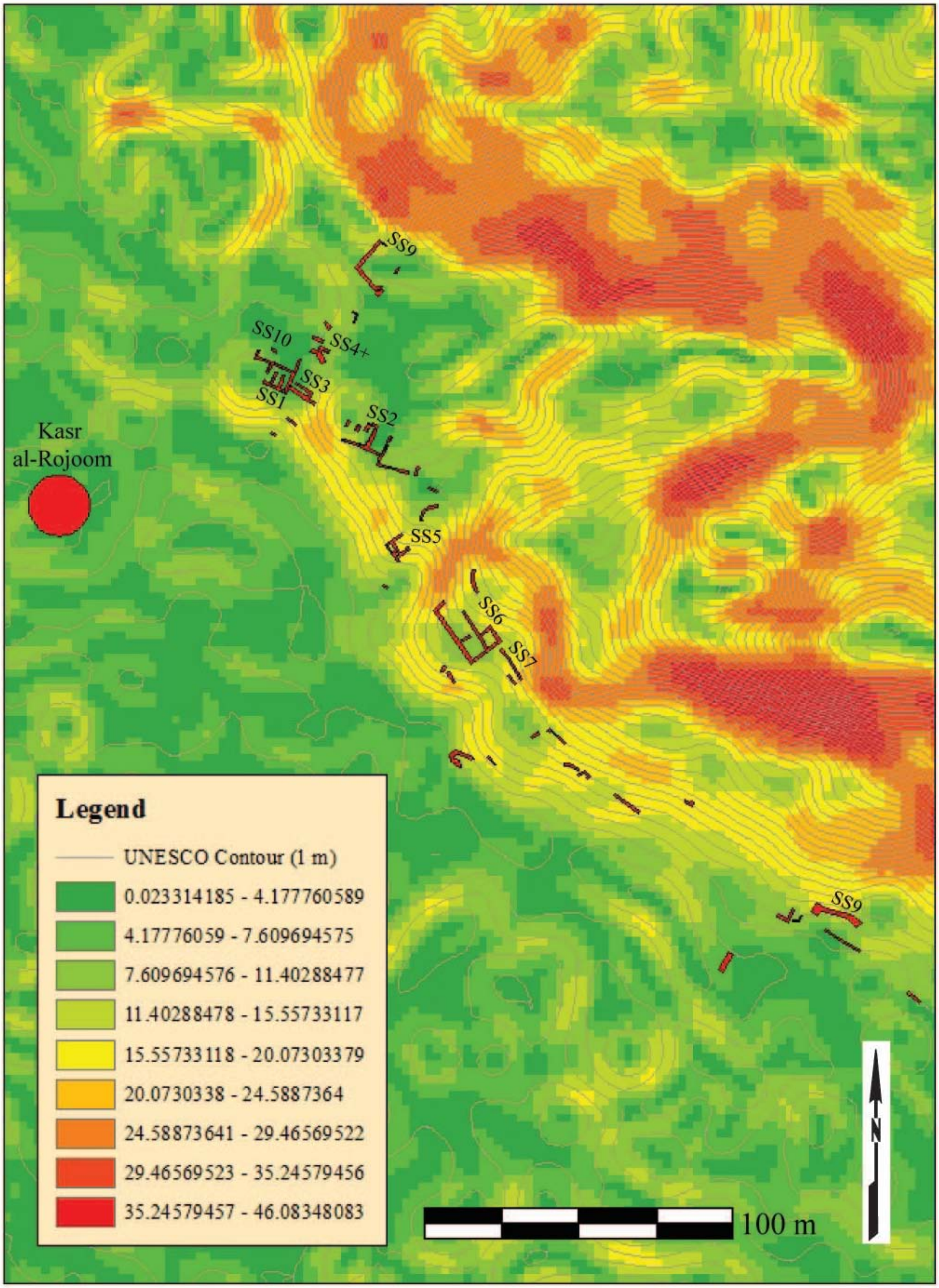

Fig. 5.35: Late Umm an-Nar Settlement Slope terrain slope.

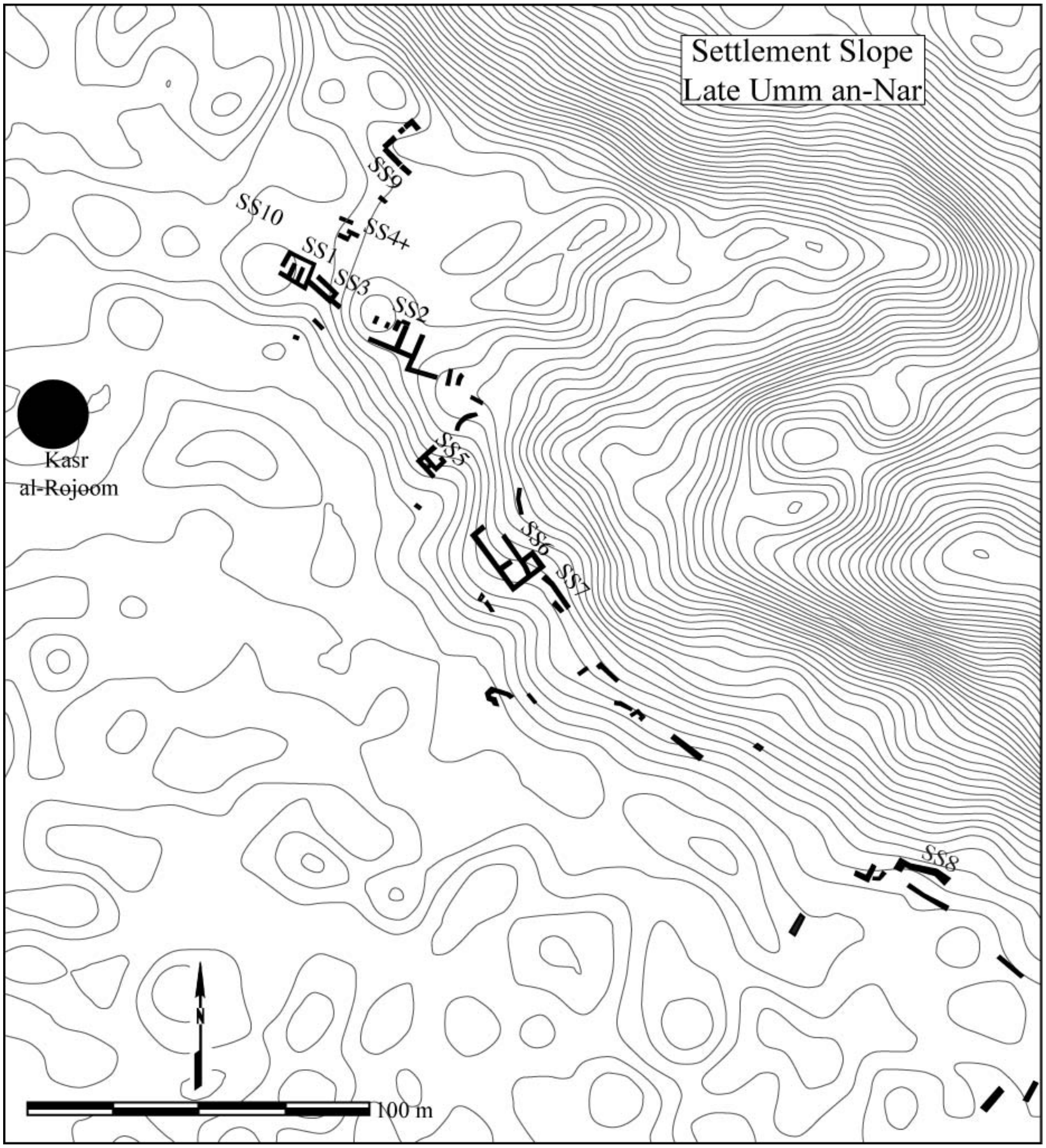

Fig. 5.36: Late Umm an-Nar Settlement Slope access plan.

halves (northwest and southeast) and marks a shift in the alignment of the Settlement Slope architecture in this area. Structures SS5-SS8,[330] as well as numerous wall

[330] It must be, once again, noted that the Late Umm an-Nar date for the structures on the southeastern majority of the Settlement Slope is a tentative estimate based on surface collections. Without further excavation, it is not possible to securely determine the temporal relationship between these buildings and the excavated structures at the northwestern end of the hill.

fragments scattered between the identified buildings, all follow an alignment that is roughly 40º clockwise of that of the northern Structures SS1 and SS2.[331] Reasons behind this break in the Settlement Slope's organizational pattern may relate to a number of factors including: the increasing ruggedness and shift in the direction of the hillside; the settlement alignment having been determined by an as of yet unidentified access street/pathway;[332] and/or a shift in alignment to increase visibility of the Kasr al-Rojoom tower to the west.[333]

Now taking a closer look at the architecture and terrain of the Settlement Slope's southeastern half, let us begin with the northernmost Structure SS5. This small building is perched on a moderately steep (17-25º) patch of the bedrock outcropping that defines the southeastern half of the site. Due to the surrounding irregular terrain, Structure SS5 is somewhat isolated from both Structure SS2 to the north and the buildings to the east. This building may well have been the example that Frifelt had in mind when she suggested that: "the houses were built – terraced? – on [the Settlement Slope's] lower half" (1985:99). To the southeast of Structure SS5, and on the far side of a bedrock ridge,

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[331] This shift in alignment also holds true for the Structure SS9 enclosure uphill and to the north of Structure SS1. Although it has not yet been possible to date the construction and use of this building, the alignment indicates that its origins more closely linked to the structures on the southeastern portion of the hillside than to the geographically closer Structures SS1 and SS2.

In order to maintain this alignment, the Settlement Slope's buildings on the southeastern hillside gradually move up the hill and eventually reach a maximum elevation of 469 m above sea level at the southeastern end of the built area. This alignment pattern results in the southeastern buildings being situated a full 8 m higher than their distant northwestern neighbors (excluding the outlying Structure SS9).

[332] Although there is so far no evidence to suggest that the street/pathway identified in the northwest continues around the bedrock outcropping or that a second pathway was added along with the new alignment, the uniformity of the settlement organization leaves open the possibility for such a feature.

[333] However, we must also note that this alignment shift does not ensure that the Kasr al-Rojoom monument is visible to the full length of the Settlement Slope. While the visibility of the monument is improved by the rotation of the building alignment for Structures SS5, SS6, and SS7, buildings at the far southeastern end of the hillside would not have had a view of the tower.

we find the large Structure SS6 and its neighboring (fragmentary) Structure SS7. These two buildings are situated in a patch of relatively gentle terrain but are isolated from other structures to the northwest (i.e., Structure SS5) and southeast by a ring of steep limestone. We can thus read Structures SS6 and SS7 as spatially and, in all likelihood, functionally linked. Moving further to the southeast, the remainder of the Settlement Slope hillside narrows and maintains a mild-to-moderate slope of 8-25,º with little dynamic topography to differentiate the space. Although little can be said of the wall fragments scattered across this stretch of the hillside, these architectural bits and pieces do follow the same alignment as Structures SS5, SS6, and SS7 the northwest. Judging by the most intact of these buildings, the roughly delineated Structure SS8 at the far southeastern end of the hill, it is not unreasonable to presume that the site's lost buildings originally adhered to the same organizational scheme as the Settlement Slope's Late Umm an-Nar buildings.

The terrain-based settlement organization that we have grown accustomed to in the heart of Bat's landscape contrasts sharply with the plan of the Late Umm an-Nar satellite community at az-Zebah. At this site, located on the flat of the wadi plain, the underlying terrain provides us with very little insight into the settlement's organization and circulation (see Fig. 5.37).[334] However the flat landscape has saved the settlement architecture from much of the erosion damage suffered by the hillside sites.[335] As a

[334] The areas of moderately steep terrain (33-40º) in Fig. 5.37 are man-made, circular, stone mounds. During their tenure at az-Zebah, Döpper and Schmidt excavated one of these mounds but were unable to determine a clear function or date of construction, although they suggest that these features were later additions to the site (2014; Schmidt & Döpper 2014).

[335] It is, however, probable that some of Zebah's architecture has been damaged by seasonal flash flooding events. Indeed, Döpper and Schmidt interpret an unusual diagonal wall and semi-circular retaining wall on the northern side of Haus III as water breaks to prevent flood damage (cf. Schmidt 2014:7).

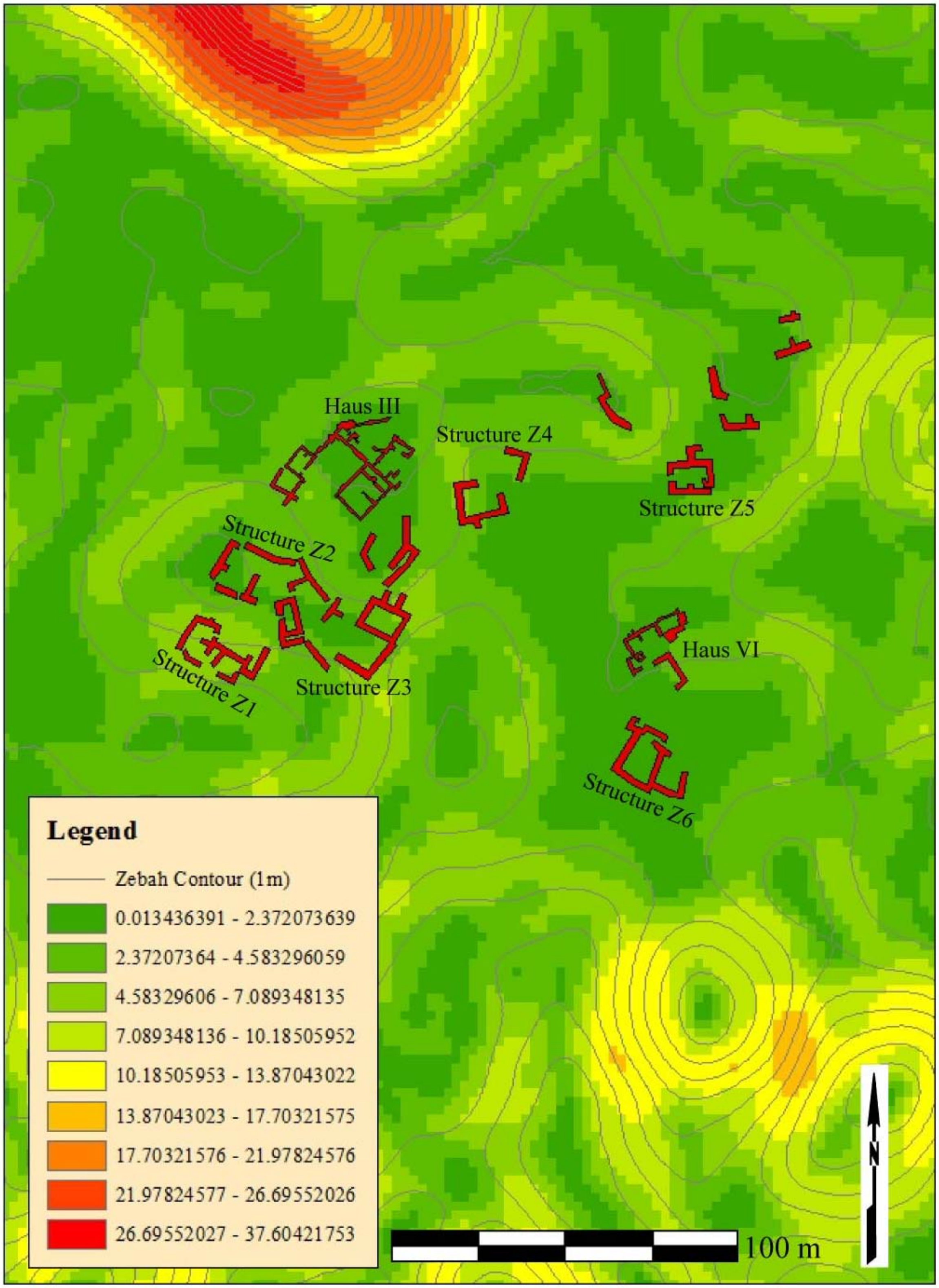

Fig. 5.37: Az-Zebah terrain slope.

result, even from the unexcavated ground surface we can clearly see that Zebah's architecture is divided into six or more large compounds.[336] Open spaces between these structures suggest the likely corridors of movement through the settlement (see Fig. 5.38). The wide, linear, and unbuilt area in the center of the site indicates that the primary access to the settlement was along a wide pathway that divided the community in two. The western half of the settlement (composed of Haus III and Structures Z1, Z2, Z3, and Z4) is notably denser than the eastern half (composed of Haus IV and Structures Z5

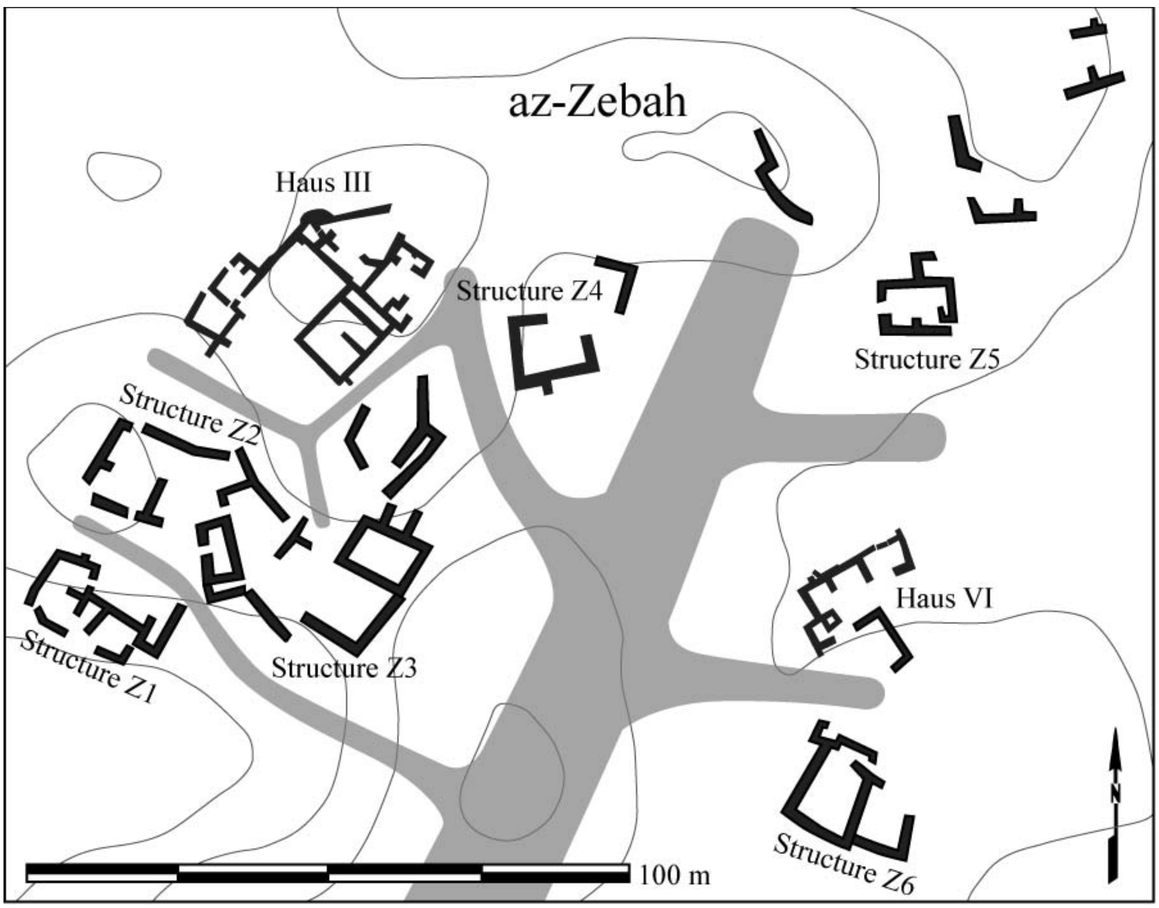

Fig. 5.38: Az-Zebah access plan and possible pathway locations.

336 The architectural clarity of az-Zebah's Structures Z1, Z2, and Z3 does not yet allow for a flawless reading of the buildings' floor plans. As these three compounds are clustered closely together, it is some degree of structural overlap between compounds. Future excavation is necessary to fully clarify the organization of this section of the settlement.

and Z6). The possible paths of movement between the tightly packed structures in the west are narrower and more difficult to identify than in the widely spaced eastern half of the settlement. Nevertheless, we can envision a network of alleys threading between the western buildings, whereas broader pathways would have accessed the more widespread structures in the east. While the irregular building arrangement and network of pathways found at Zebah contrast with the regular structural alignments and apparent single access pathway found in the Late Umm an-Nar occupation on the Settlement Slope, both sites are characterized by either spatially or structurally isolated compounds. Such compounds, especially if associated with evidence for domestic activity as are excavated examples from both sites (cf. Döpper & Schmidt 2013; 2014; Schmidt & Döpper 2014; see also **Section 6.3**), can be interpreted as reflecting social sub-groups of the settlements' population (Banning 2010; Smith 2003; Steadman 2010; 2011).

In total, during Bat's Late Umm an-Nar occupation we see what appears to be two organizational strategies for creating the same spatial logic of a settlement segmented into semi-private and private areas (i.e., zones or courtyard compounds). At the Settlement Slope, the pre-existing Middle Umm an-Nar strategy of engaging with the underlying terrain to define and structure movement through settlement space is maintained and expanded along the length of the hillside. However, on the topographically neutral wadi plain, the community at az-Zebah depended wholly on architectural organization to create corridors of movement through and access to specific areas of the settlement. It is also noteworthy that, while Zebah is located on the wadi plain, topographically diverse terrain similar to that of the Settlement Slope is available in the site's immediate vicinity.

Zebah's inhabitants thus deliberately chose live on the flat of the plain, where they had far more spatial flexibility for how to organize their settlement layout, rather than on the naturally restricted nearby hills. The reasons behind the differences in the orientation and organization of settlement space in these two sites cannot yet be absolutely determined. However, I suggest that differing settlement layouts likely reflect corresponding differences in the lifestyles and/or economic specializations of the settlements' residents (e.g., agriculture and/or metallurgical production at the Settlement Slope vs animal husbandry at az-Zebah; cf. Döpper & Schmidt 2014; Schmidt & Döpper 2014; **Section 6.3**). Such differing site functions and socio-spatial needs may also reflect the settlements' varying positions in Bat's community of settlements (see **Section 5.3** above). Despite the variations, the persistent appearance in both Late Umm an-Nar sites of restricted settlement spaces (whether formed by architecture, topography, or a combination of the two) demonstrates that the society maintained a comparable socio-spatial organization both in the heart of the Bat landscape and on its outskirts.

5.4.4 Socio-Structural Interpretation

As discussed above (see **Section 5.2**), the ways in which a settlement is organized, and its built spaces are accessed, correspond to how the inhabiting population organizes themselves and their activities (cf. Bourdieu 1990; Giddens 1984; Hastorf 2009; Ingold 1993; Pauketat & Alt 2005; Rapoport 1982; 1990; Tilley 2005; 2009). The social space in each of Bat's settlements was structured by a combination of architectural, topographic, and social factors. Now that we have explored the first two of these components in depth, let us consider what they might reveal about the social organization that Bat's settlements supported. As interpreted by Azzarà (2009; 2015), the Umm an-Nar society at Ra's al-Jinz was composed of extended, economically cooperative household groups based in courtyard compounds. Although the Umm an-Nar settlement patterns at Bat are notably different than those on the Ja'alan Coast, it is possible to observe some clear parallels in the spatial logic of Bat's settlements to those at Ra's al-Jinz. With this final sub-section, I combine the results of the spatial analyses of Bat's settlement organization above (see **Sections 5.4.2** and **5.4.3**) with archaeological and ethnographic parallels in order to reconstruct broad qualities of the site's Umm an-Nar social organization.

The two key organizational traits of Bat's Umm an-Nar settlements discussed in the sub-sections above – their syntactic logic and their interior circulation as determined by pathways, architecture, and topography – both address the basic issue of how the physical parameters of those settlements worked to influence the possible social uses of their component spaces. Just as architectural syntax determines the relative accessibility of, and communication between, built spaces, the corridors of movement through a settlement determine how its inhabitants engage with and access those spaces. If we momentarily return to Hillier and Hanson's concept of using elementary syntax diagrams to visualize socio-spatial logic (1984:78; see **Section 5.4.1** and Fig. 5.23 above), we can apply the same graphic methodology to settlement terrain and circulation systems as to buildings. By integrating Bat's irregular terrain into our understanding of the settlements' architectural syntaxes, we find that in at least two cases (i.e., Khutm's Structures KU2 and KU3 and the Settlement Slope's Structures SS6 and SS7) the constraints added by the topography place buildings with apparently simple (Z_1) syntaxes into locations with more restricted access than their plans suggest (see Fig. 5.39).[337] This additional level of restriction would render all the affected structures Z_5 or possibly Z_6 syntaxes (i.e., two

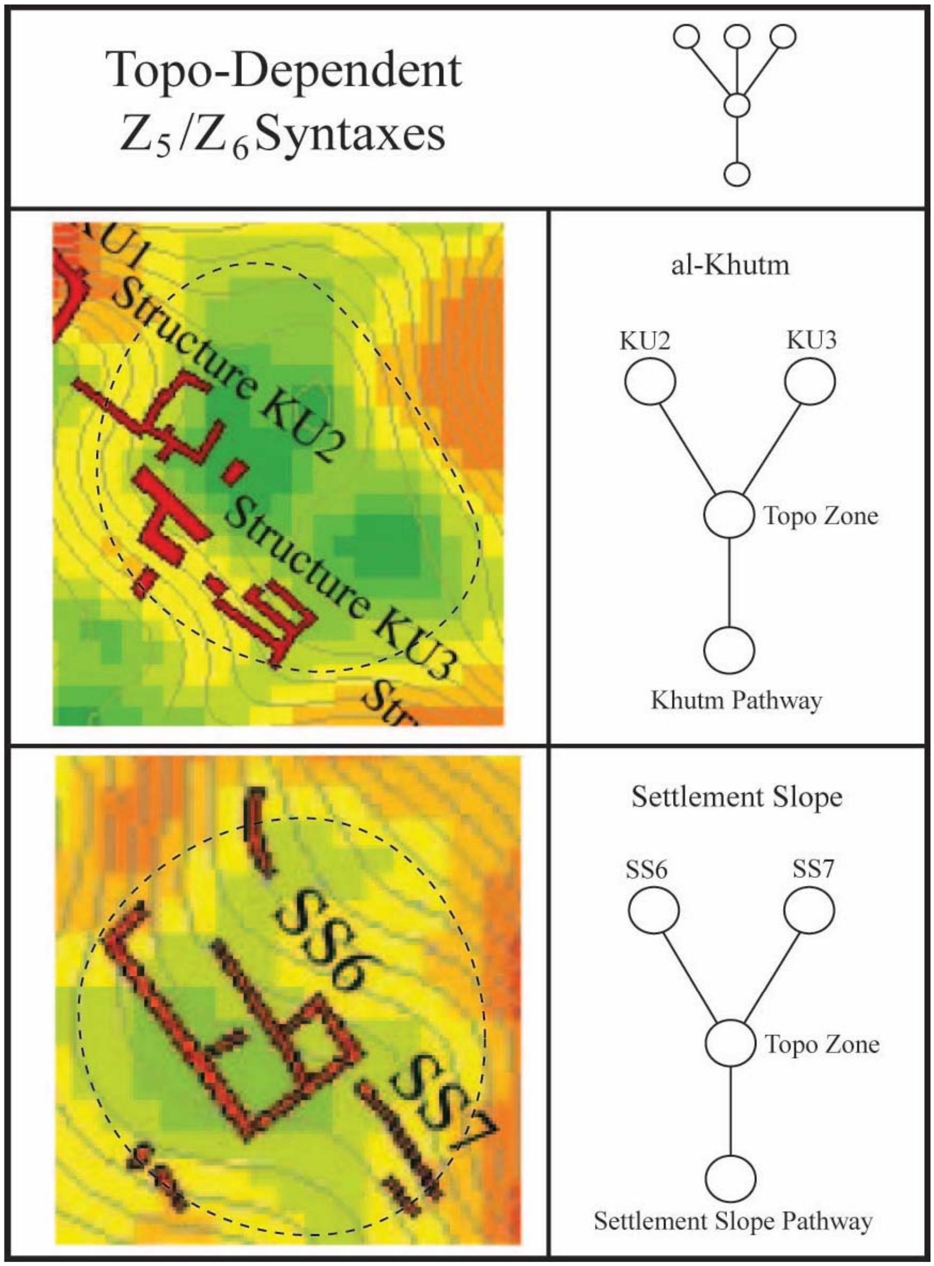

Fig. 5.39: Terrain-structured Z_5/Z_6 syntaxes.

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[337] Topographic restrictions, such as slopes and bedrock outcroppings that prevent easy movement between two spaces, effect the Settlement Slope's Structures SS2, SS5, SS6, and SS7, al-Khutm's Structures KU2, KU3, and KU4, and al-Khafaji's Structure KA4.

open, public or semi-private spaces must be passed through in order to access the closed, private space). Similarly, when considering circulation systems as part of the settlement syntax, we once again find repeated examples of Z_3 and especially Z_5/Z_6 formations, as the public spaces of the pathways at the Settlement Slope, al-Khutm, al-Khafaji, and az-Zebah all provided access to either single units (i.e., buildings) or into shared natural zones or structural courtyards which, in turn, granted access to one or more units (i.e., compounds) (see Figs. 5.40 & 5.41). Taken as a whole, this syntactic reading reveals Bat's Umm an-Nar settlements as each being internally organized into a chain of increasingly controlled built spaces.

The repeated use of the Z_3 and especially Z_5/Z_6 syntax to divide and organize Bat's settlements into collections of smaller spatial and structural sub-groupings emphasizes the importance that the site's Umm an-Nar society placed on privacy and control of space and/or resources within that space. Indeed, the diversity of manners through which the Z_3 and Z_5/Z_6 spatial organization were created at Bat (i.e., through a variety of structural formations and interactions with the natural terrain) suggests that the additional level of privacy provided by the mediating natural zone or courtyard space was valued by the Umm an-Nar population over a more uniform structural layout. Such division of settlement space[338] and emphasis on privacy and control of resources within a settlement is commonly associated with more complex, hierarchical societies (Chippendale 1992; Rapoport 1982; Ristvet 2011).

[338] There is also evidence for the division and specialization of building interior space, which further indicates social complexity. For details on the structural layouts of individual settlement buildings at the Settlement Slope and Khafaji as well as discussion of their interior contents, see **Sections 6.3** and **6.4**. See also Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014.

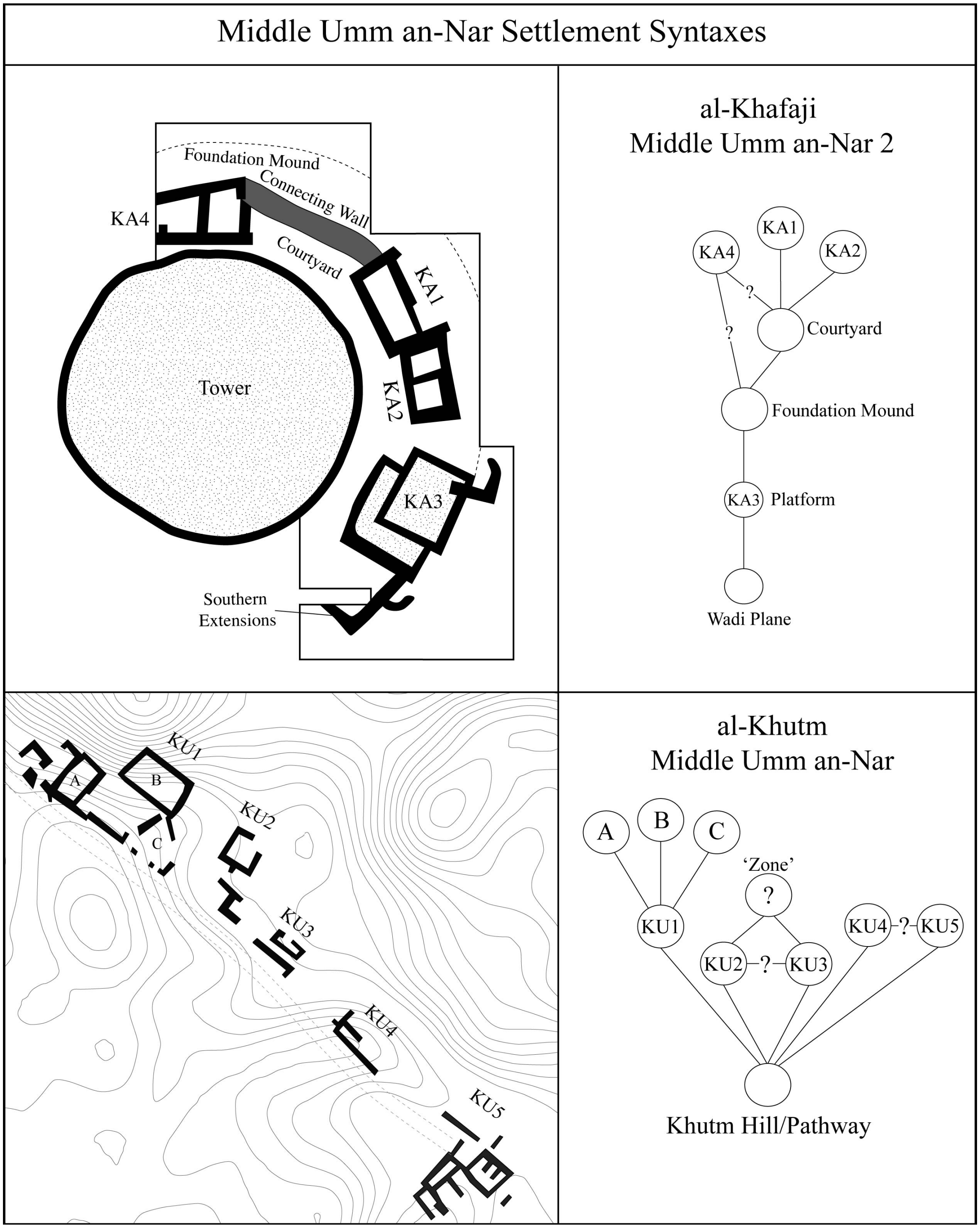

Fig. 5.40: Middle Umm an-Nar settlement (Z_3 or Z_5/Z_6) syntaxes.

For further insight into how this social complexity was manifest at Bat, we must consider other well-documented archaeological and ethnographic examples that are

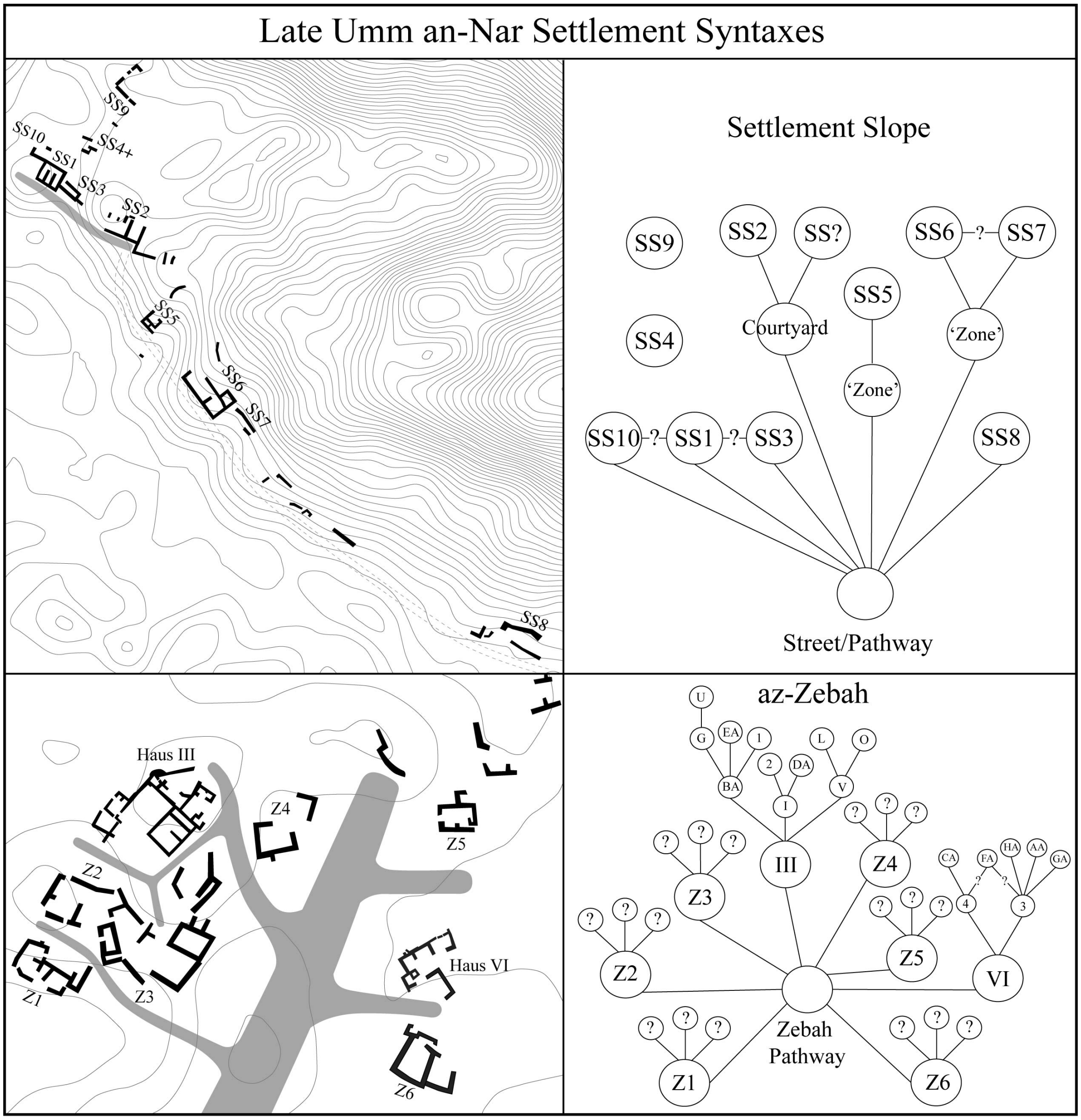

Fig. 5.41: Middle Umm an-Nar settlement (Z_3 or Z_5/Z_6) syntaxes.

characterized by social sub-groups, privacy, and control of space. Semi-private courtyard spaces, such as those repeatedly found in Bat's settlements, are used in ethnographic cases throughout the modern and historical Near East to spatially, socially, and economically link the inhabitants or users of the buildings accessed through them (BaHammam 2006; Horne 1994; Ragette 2003; Zako 2006). These courtyard spaces provide a controlled area for the social sub-group to interact, share resources, and practice outdoor activities directly associated with the group (cf. Bandyopadhyay 2006; Hawker 2006; Memorial & Brown 2006; Mershen 1999; Ragette 2003:59-60). In such examples, the courtyard group typically, but not universally, consist of an extended household connected by kinship ties[339] (cf. Azzarà 2009; 2015; Bandyopadhyay 2006; Hawker 2006; Horne 1994; Memorial & Brown 2006; Mershen 1999; Ragette 2003; Ujam 2006).

The clearest archaeological parallels for Bat's settlement spatial organization come from the sites of Ra's al-Jinz 2 and Maysar 1 (see **Section 3.2.2**). The Umm an-Nar courtyards documented by Azzarà at Ra's al-Jinz contain ample evidence for domestic and craft production activities. These spaces connect a substantial number of structural units that are interpreted as primarily consisting of domestic living 'apartments' (Azzarà 2009:9-12; 2015; Cleuziou & Tosi 2000:34-39). While the structural, and presumably social, groups at RJ-2 are more tightly clustered than most of Bat's examples, a similar Z_5 spatial logic is apparent. An alternative comparison to Bat's settlement layouts is found in the Late Umm an-Nar settlement remains at Maysar-1. Here, rectilinear structures composed of two to four rooms are dispersed across a flat area of a wadi plain and are each associated with their own walled courtyard that contains evidence for domestic activity (Weisgerber 1980; 1981; see also **Section 3.2.2**). Such layouts are reminiscent of the Settlement Slope's Structures SS1, SS2, and SS5. Rather than reflecting the extended

[339] Other courtyard groups are connected through institutional or cooperate connections, however such non-familial groups typically function in a manner that parallels the household (cf. Carballo 2011; Chesson 1996; Horne 1994; Lévi-Strauss 1982; Monaghan 1996; Nash 2009; Schloen 2001; Ur 2014).

household groups that Cleuziou (2003; 2009) and Azzarà (2009; 2015) propose at Ra's al-Jinz, the smaller courtyard structures at Maysar and the Settlement Slope may instead represent smaller socioeconomic groups.[340]

Although only a small sample of Bat's compounds have so far been excavated, buildings associated with courtyards and especially the courtyards themselves have been found to contain evidence of domestic activity at the Settlement Slope, al-Khafaji, and az-Zebah.[341] It is, therefore, not unreasonable to expect that at least some of Bat's courtyard compounds supported household-type social groups, such as those interpreted by Cleuziou (2003; 2009) and Azzarà (2009; 2015).[342] Although the precise nature of the social entities affiliated with each of Bat's structures cannot yet determined (i.e., kinship, cooperate, institutional, or other), I suggest that the overall Z_5/Z_6 organization of Bat's settlements can be interpreted as representing an Umm an-Nar society that is segmented into a number of socioeconomic sub-groups.

5.5 Conclusions: Bat's Umm an-Nar Social Complexity and Structure

The spatial characteristics of Bat's settlements discussed in this chapter provide insight into the social complexity and organization of the Umm an-Nar populations who

340 While it is tempting to read the existence of buildings differing significantly in size within Bat's settlements (particularly at al-Khutm and the Settlement Slope) and elsewhere as suggesting Umm an-Nar social stratification, we cannot yet make such as claim as it is unclear if these structures served comparable social functions.

341 Cf. **Sections 6.3** and **6.4**; Döpper & Schmidt 2013; 2014; *forthcoming*; Schmidt & Döpper 2014.

342 It should again be noted that the ethnographic record of the broader Near East does not wholly support a one-to-one correlation between kinship-based households and shared courtyards (cf. Horne 1994). However, on the Arabian Peninsula there is a strong connection between extended family groups and courtyard house complexes (Bandyopadhyay 2006; Ragette 2003:83).

inhabited them. As mentioned above, previous interpretations, based primarily on mortuary data, categorize the Umm an-Nar as a pre-state society with an undifferentiated (e.g., unranked) population (cf. Cleuziou 2002; 2003; 2009; Cleuziou & Tosi 2007:90-91, 132; Lancaster & Lancaster 1992; Tosi 1986; see **Section 5.2**).[343] Reconstructions of Umm an-Nar social organization, based on the settlement remains from the coastal site of Ra's al-Jinz, posit a society that consisted of kin-based household groups that correspond with the period's large communal tombs and agglomerative, courtyard compounds (Azzarà 2009; 2015; Cleuziou 2002; 2003; 2009). The evidence presented above from Bat's settlement landscape adds both interpretive depth and geographic breadth to this image of Umm an-Nar society.

Bat's tower monuments, as symbols of Umm an-Nar community identity (cf. Cleuziou 2003; 2007; Cleuziou & Tosi 2007; Harrower *et al.* 2014), firmly tied the site's population to their cultural landscape in the Wadi Sharsah (Bender 2002; Steadman 2005; Tilley 2005; 2009). The network of visibility and inter-visibility at play between these towers conceptually linked the inhabitants of their associated settlements with one another and with the memory of Bat's earlier populations, whose presence was still represented on the landscape through their tower monuments. Such a landscape of memory (Akkermans *et al.* 2014; Bailey 2007; Bender 2002; Tilley 1994; 2009; Yoffee 2007) could have referred to and reinforced the lineage-based Umm an-Nar social structure (cf. Cleuziou 2002; 2003; 2009; Cleuziou & Tosi 2007). Additionally, the

[343] Relying on funerary practices from across the Oman Peninsula, Cleuziou suggests that in the Umm an-Nar society "accumulation [of wealth] was not favorably seen and sharing was important; power was viewed with suspicion, and imposing anything by coercive means was rejected" (2003:140-141).

visual and presumably social network that existed between settlements in the Bat heartland indicates that the various residential groups or neighborhoods who inhabited the landscape identified as a single community, rather than as a number of independent, neighboring communities (cf. Smith 2010; see also **Section 5.3**). Even after accounting for the ebb and flow of settlement activity that occurred throughout the Early Bronze Age, Bat stands out as a prominent Umm an-Nar occupational center.

The variety of settlement locations and compositions on Bat's landscape can be interpreted as indicating a diversity of lifestyles, subsistence strategies, and/or specializations that all contributed to the site's overall Umm an-Nar society and economy. Yet, similarities in the spatial logic found in all of Bat's settlements suggest that a comparable Umm an-Nar social structure was at play in each example. Such a shared social structure would have knit together the otherwise diverse segments of the population. Bat's system of spatial organization served to divide the settlements, and presumably their populations, into sub-groups based on access to various buildings or architectural compounds that was moderated through a semi-private courtyard or topographic zone. This courtyard-based organizational scheme becomes increasingly apparent at Bat as the Umm an-Nar Period progressed. Such a trend may be the result of mounting population pressure or social integration into sub-groups (re: Azzarà 2009), which made it increasingly necessary for Bat's communities to structure their settlement space in such a way as reflected and reinforced their social organization. Similar spatial patterns exist, to varying degrees, in the Umm an-Nar settlements at both Ra's al-Jinz

(Azzarà 2009; 2015; Cleuziou 2003; Cleuziou & Tosi 2000) and al-Maysar (Weisgerber 1980; 1981).

This spatial profile and interpretation of Bat's Umm an-Nar society fits well with that proposed by Cleuziou (2002; 2003; 2009), Azzarà (2009; 2015), and others (see Cleuziou & Tosi 2007; Gregorica 2011; Lancaster & Lancaster 1992; Magee 2014:120-122; Potts 1990a; Tosi 1986). Similarities between Bat's settlement distributions and the internal organization of its settlement spaces with that found in other areas and sites throughout the Oman Peninsula moves toward a wider understanding of the Umm an-Nar society and settlement tradition. The nature of Bat's social sub-groups, what others have interpreted as households (Azzarà 2009; Cleuziou 2003), and details of the lifestyles and economic strategies practiced by them will be explored in the following chapter (**Chapter 6**).

CHAPTER 6:

BAT'S UMM AN-NAR HOUSES AND HOUSEHOLDS

6.1 Introduction

We have now established Bat as the center of a significant Umm an-Nar community that existed throughout the duration of the period – from the Early through the Late Umm an-Nar. I have discussed Bat's society as one segmented into household groups with little evidence of social differentiation (see **Chapter 5**). However, the specifics of how that community functioned on smaller daily and yearly time scales are also crucial to understanding the Umm an-Nar. The methods and objectives of household archaeology allow us to study such details of daily life as well as the ancient lived experience. In this chapter, I employ specific strategies from this archaeological school in order to move towards a more microcosmic scale of analysis – that of the household. Although excavations targeting Bat's settlement contexts have only been carried out in select sections of the Settlement Slope and al-Khafaji, the results of this research provide us with the best available information for understanding the site's Umm an-Nar society and household structure. In my analysis, I systematically move through the excavated settlement contexts from each site and consider the preserved evidence of the architecture and activities that shaped and were shaped by the daily lives of the ancient community.[344]

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[344] Although the objective of this chapter is to identify and interpret Bat's households, I discuss and offer interpretations for all the excavated, non-monumental, Umm an-Nar rectilinear architecture at the Settlement Slope and al-Khafaji. This includes both domestic and non-domestic spaces that may or may not represent households, but all of which contributed to the functioning of Bat's communities. See also **Section 2.4.2**.

Through this process, I reveal fine-grain details of the site's Umm an-Nar society, including its domestic economy, intra-household organization, and lifestyle.[345]

In order to carry out this household-level interpretation, I must first lay the groundwork for identifying the social household within the physical remains of Bat's settlements. I begin this chapter by briefly reviewing the principles of household archaeology and how they are best adapted to the preserved remains at Bat's settlements. I then present in detail the results of BAP's excavations of the settlement contexts at the Settlement Slope and al-Khafaji – particularly those within or directly related to rectilinear architecture. Only in areas with well-preserved contextual information is it possible to observe both discrete moments in time and the diachronic change that shaped life in each settlement. Based on the excavation results, I reconstruct occupational use-lives for each structure, propose interpretations of building functions/meanings, and define a relative chronology for the excavated portions of both settlements. By recognizing evidence for domestic activity in this robust framework, I attempt to identify both physical houses and social households and, from them, to offer an interpretation of Bat's Umm an-Nar society and lived experience. The picture that emerges is of two neighboring communities composed of relatively small, economically independent, and presumably lineage-based household groups that are centered on house structures with adjoining outdoor activity areas.

[345] The archaeology of the Oman Peninsula stands to benefit from such a study due to the limited number of Umm an-Nar settlements that have so far been excavated. See **Chapter 3** for further discussion.

6.2 Methodologies and Interpretive Challenges

The foundations of any society are made up of human agents that, through their daily activities and repeatedly enacted social norms, perpetuate their culturally defined ways of life (Bourdieu 1977; Giddens 1976; Guengerich 2014; Hodder 1998; Ross & Steadman 2010; Smith 2001; Steadman 2010). Although individual human actors within an ancient society are often obscured by the passage of time, the household group (as the basic unit of social and economic organization) has a far greater potential to leave a lasting impression in the archaeological record. Households serve as the structuring unit for basic organization of labor, production, and economy as well as the transmission of group culture, identity, and property (cf. Allison 1999; Carballo 2011; Nash 2009; Parker & Foster 2012; Rainville 2015; Tringham 1994; 2001; see also **Section 2.3.2**). Traces of such a household group can be found in the physical structure(s) or house(s) that it inhabited and in the evidence of the domestic activity carried out by its members. Once identified, the archaeological household can be used as a conceptual template for understanding the wider culture, social organization, and lifestyle of the ancient society of which it was a part. Although far from an ideal data set, the excavated architecture and domestic contexts at the Settlement Slope and al-Khafaji provide the best window so far available at Bat through which to access the site's Umm an-Nar households and the lived society that they represent.[346]

[346] The Settlement Slope and al-Khafaji are the only locations in the Bat heartland where BAP has specifically targeted settlement contexts for excavation. Settlement contexts at the nearby site of az-Zebah have also been explored by the German Mission to Oman. For results of these excavations, see Döpper and Schmidt 2013; 2014.

While there is not necessarily a one-to-one correlation between the physical house and the social household,[347] the remains of ancient houses are often the most direct source of information available to archaeologists for observing household structure, organization, and behaviors (cf. Carballo 2011; Chesson 2012; Steadman 2010; 2015; Tringham 2001; 2012a; see also **Sections 1.2** and **2.3**). Houses and their immediate surroundings serve as the primary dwelling space of the household members – the location where food is prepared and consumed, where children are reared, resources are stored, economic and maintenance tasks are carried out, and where the household members interact and take shelter. The material structure and experience of being in a house (i.e., the house's materiality) communicates to household members the behaviors, activities, and interactions expected to take place in its various spaces (cf. Hutson 2008:18-23, 97-134; Ingold 2000; Meskell 2005; Rapoport 1990; see also Bourdieu 1977: Giddens 1984; Miller 2005; Preucel 2006). Houses and the dwelling activities/ experiences that they support are thus essential for the transmission and reinforcement of sociocultural rules and values (Hodder 1990; Hutson 2008; Ingold 2000). Additionally, since houses tend to change little over years or even generations of use, they are also important vessels for perpetuating social norms (Beck 2007; Rapoport 1969; Steadman 2005; 2010).

As discussed at length in **Chapter 3**, the Umm an-Nar house and domestic tradition is not yet well documented or understood by archaeologists of the Oman

[347] A single household may occupy multiple houses or dwelling structures, while a single house may also be in inhabited by members of more than one household (cf. Brody 2011; Carballo 2011; Hammel 1984; Horne 1994; Schloen 2001; Ur 2014; Wilk 1984; Wilk & Rathje 1982). See **Section 2.3.3** for further discussion.

Peninsula. While occupational and subsistence trends are visible across wide geographic and environmental regions, details of Umm an-Nar domestic activity and architecture are available only for a limited number of sites (e.g., Ra's al-Jinz, Umm an-Nar Island, and Maysar). The excavated settlement contexts at the Settlement Slope and al-Khafaji thus provide valuable opportunities through which to clarify the domestic tradition and household structure not only for Bat but for the wider region. Using the results of these excavations, I identify probable Umm an-Nar houses at both settlements and reconstruct characteristics of the households who occupied them. In the discussions below, buildings are identified as houses based on their association with evidence for domestic activity, which include but are not limited to: food preparation/consumption (i.e., hearths, ovens, grinding stones, etc.), storage (i.e., pits, storage jars, store rooms, etc.), waste disposal (i.e., trash pits or rubbish accumulation), and household-scale craft production (i.e., metallurgy). In cases of agglomerative structures, I attempt to identify sets of rooms that communicate with one another through doorways or semi-integrated interiors (i.e., building interiors with structurally defined spaces but not fully enclosed rooms; see **Section 6.3.1**). However, interior doorways do not often preserve in Bat's architectural remains (see **Sections 6.3** and **6.4** below). Based on the house form, layout, and nature of the evidence of domestic activity found in association with them, I consider household qualities including population size, division/organization of labor, economy, and privacy. The reconstructions of Bat's assorted households (see **Sections 6.3.6** and **6.4.6**) contributed to a reinterpretation of Umm an-Nar society that I propose in the chapter conclusion.

However, in order to identify and interpret Bat's houses and households, characteristics of the preservation and site formation at both the excavated settlements must be addressed. As discussed in **Chapter 2** (**Section 2.4.2**), the preservation of Bat's Umm an-Nar settlements is often not sufficient for many of the best known methods of household archaeology, as popularized in Mesoamerica and elsewhere in the Near East.[348] The Settlement Slope and al-Khafaji are particularly beset by poor stratigraphic definition and a lack of in situ contexts within or associated with settlement buildings. The interpretive methodologies that I adopt for analyzing Bat's settlements (i.e., building use-lives and vernacular architecture) thus depend primarily on their more reliably preserved architectural remains. Both methods engage directly with settlement architecture as reflexive agents in the development and daily enactment of social rules, structures, and behaviors (i.e., with the situational dwelling that takes place within the settlement and houses).

The first of the two interpretive methodologies that I apply in the interpretation of the excavated structures at the Settlement Slope and al-Khafaji is the reconstruction of building (and occasionally activity area) use-lives. A use-life is the duration of a building or area's cultural use from its initial construction to its final abandonment or destruction (cf. Herrmann 2011:333-415; Matthews 2005; Stone 1987; Stevanovic 2012; Tringham 1994; see also **Section 2.4.2**). A building's use-life profile is assembled by identifying isolated episodes of activity (e.g., the construction of walls, blocking of doorways, installation of features, or regular maintenance events such as the re-plastering of a floor)

[348] E.g., activity area analysis, microarchaeolgoy, microstratigraphy, or household foodways explored through archaeobotany and archaeozoology. See **Sections 2.3** and **2.4.2** for further discussion.

in sequence. These events become both chronological markers of phases in the building's history and evidence of builder agency. Construction events that change the layout of a structure reflect a corresponding change in its use patterns, either the beginning of a new behavioral system for preforming the same function(s) or a repurposing of the building for a new function(s). In contrast, activities repeatedly carried out in the same space reflect continuity in the building's use. Such use-life events can also be used to develop a more humanistic perspective of the individuals who used and maintained the structure. The lifecycle of a building, and especially of a house, reflects that of its users/inhabitants (Carsten & Hugh-Jones 1995; Herrmann 2011; Tringham 1991; 2012b). Through the long-term perspective of a use-life, episodes of maintenance or structural alteration in a building can thus reveal significant social shifts or regular time cycles (daily, seasonal, generational, and life) in the lives of their users (Foxhall 2000; Matthews 2005; Tringham 1994).

In the contexts of Bat's settlements, this interpretive method is particularly valuable as a means of establishing a secure occupational sequence or chronology for a building and its contents in the absence of clear stratified contexts. Bat's archaeological landscape is characterized by poorly preserved natural stratigraphy, although the manifestation of this issue differs from location to location. At the Settlement Slope, the erosion of the sediment down the hillside has resulted in the site's stratigraphy deflating and compacting into a dense concentration of undifferentiated wadi gravel and aeolian silt. At al-Khafaji, in contrast, the surrounding wadi plain has experienced a dense accumulation (in places more than 3 m since the Umm an-Nar Period) of loamy clay.

However, the homogenous nature of this alluvial matrix in combination with the annual churning caused by the region's seasonal floods obscures most stratigraphic layers.[349] For both the Settlement Slope and Khafaji it is thus often necessary to supplement conventional stratigraphic analysis of the excavated materials with structurally defined use-life profiles in order to physically and conceptually identify secure, sequential contexts.[350]

In the excavated remains of Bat's settlement buildings at both the Settlement Slope and al-Khafaji, use-life phases are most commonly defined by construction episodes that are visible in the stone wall foundations. The foundation level for each new wall or feature differs slightly from that of the previously existing building phase. These construction events can often be connected with roughly contemporary floor levels and/or feature installations. Yet, even in cases where a floor level could not be defined,[351] the elevations of the wall foundations for each construction episode can be used to sequence the features, artifacts, and activity areas within a built space.[352] Indeed, a well-defined use-life sequence frequently provides the only available context for artifacts that have been recovered from Bat's Umm an-Nar settlements. Of the sparse examples of portable

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349 The soil in the Wadi al-Sharsah is calcic or luvic in nature. Both soil types form a dense, homogenous clay that is naturally resistant to forming the striations that are the foundation of archaeological stratigraphy (FAO-UNESCO Soil Map of the World).

350 While as of yet unconfirmed, similar states of preservation are likely to be found at Bat's other Umm an-Nar settlements due to their comparable positions on the landscape (i.e., either on eroded hillsides or on the flat of the wadi plane).

351 Clay floors have been identified in some interior contacts at the Settlement Slope and al-Khafaji. However, in most instances the settlement buildings' floor levels appear to have been obscured by the same alluvial process that has effected the site's stratigraphy.

352 In instances where artifacts or features cannot be directly linked to an architectural phase, I attribute them to the phase corresponding most closely to its elevation. A similar strategy was effectively employed by Virgina Hermann at the site of Zincirli in southern Turkey (2011).

material culture found in excavated areas of the Settlement Slope and al-Khafaji, an extremely small percentage can be considered as coming from a primary use context (i.e., the undisturbed context where the artifact(s) was originally used).[353] Rather, the vast majority of settlement finds were recovered from secondary (i.e., disturbed) contexts.[354] While artifacts from such secondary contexts do not provide the same quality of information regarding the activities carried out in their find spot, their position within a building use-life provides these finds with a general context and allows them to contribute to the overall interpretation of their particular use phase. Thus, the chronological frameworks of building use-lives increases the interpretive value of artifacts from secondary contexts. Together the architectural use-life and the finds associated with each use phase allow for temporally sensitive interpretations of Bat's occupational history and of the natures and lifestyles of the site's Umm an-Nar household groups.

As a second interpretive method and complementary perspective to the use-life profiles of Bat's settlement structures, I also consider each building as an example of vernacular architecture. In contrast to professionally designed and constructed buildings (i.e., buildings created by a specialized architect), vernacular structures are designed and built by the people who use them. This personalized element in their design and creation results in vernacular buildings organically reflecting the needs, behaviors, and beliefs of

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[353] Primary contexts at Bat are limited to select activity areas or installations where the remnants of an activity were found intact. See **Sections 6.3.1**, **6.4.4**, and **6.4.5**.

[354] This trend of Bat's settlement artifacts overwhelmingly coming from secondary contexts is probably the result of several factors, including: settlement buildings being cleaned out upon vacation; disturbance by later reuses of the settlement space; and erosion/sediment churning and aggregation caused by the annual wadi flooding.

their users/occupants in ways that formally designed structures do not (Bleir 2006; Glassie 2000; Guengerich 2014; Love 2014; Lyons 2007; see also **Section 2.4.2**). While cultural norms may influence general trends in building, and especially, house layout and construction style, variations from or elaborations on those norms can be understood as reflecting the conscious choices of the builder(s) (Guengerich 2014; Love 2014; Pauketat & Alt 2005). Thus, just as the buildings (and presumably houses; see **Sections 6.3.6** and **6.4.6**) at the Settlement Slope and al-Khafaji provided the structured stages for household dwelling, they also acted as objects of material culture that reflected the needs and identities of their users/occupants (Guengerich 2014; Love 2014; Lyons 2007).

The sociocultural meaning embedded in the vernacular architecture of Bat's settlements creates a backdrop for further contextualizing the objects and contexts found within them. However, the excavated structures at the Settlement Slope and al-Khafaji were often found to contain relatively few artifacts or activity areas.[355] The spaces with the richest evidence for settlement activity are rather located outside of the buildings (see **Sections 6.3** and **6.4** below). In cases where few or no artifacts or ecofacts were recovered in association with a structure, the building itself (as a piece of material culture) provides the best insight into the activities, social functions, and putative Umm an-Nar household that it supported. By viewing the excavated buildings at the Settlement Slope and al-Khafaji as vernacular structures, I consider how building form, layout, and alterations made to that form/layout over time reflect its evolving use and the decisions of

[355] Rectilinear Umm an-Nar structures have been found to contain extremely limited assemblages of material culture at a number of sites (cf. (Blin 2007; Döpper & Schmidt 2013; 2014; Esposti 2010; Méry & Marquis 1998; Vogt 1994; see also **Section 3.3**). This trend is, in part, responsible for how few of such structures have so far been excavated.

its occupants (cf. Guengerich 2014; Love 2013; Pauketat & Alt 2005; Rainville 2015; Tringham 1991; 2012b).[356] Where conditions allow, I also incorporate associated material culture and activity areas into my interpretation of building functions. Such finds inform and refine my interpretation of each building's use and the household group(s) that participated in that use.

While architecture is the most reliably preserved feature type found in all of Bat's settlements, it must be noted that even the best-preserved of those Umm an-Nar structures present interpretive challenges that modern buildings do not. The preservation of construction materials necessarily affects one's ability to accurately evaluate building layout and form. Structures or portions of structures composed of stone or other durable materials are far more likely to survive in the archaeological record than perishable materials, such as wood, reeds, palms, or even mudbrick – potentially skewing interpretations of the built environment. Also potentially limiting one's ability to fully assess Bat's Umm an-Nar buildings are functional spaces that may not be visible in the preserved floor plans. Second stories, utilized roof space, and exterior but structurally undefined areas (e.g., exterior work or living spaces) associated with a building are often not easily identifiable in ancient contexts. Finally, isolating individual structures can add a further level of interpretive uncertainty, especially in contexts where a structure or settlement has expanded in an agglomerative fashion and/or where doorways marking

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356 Decisions for how and when to modify a building are influenced by a combination of cultural and practical factors. Practical factors may include time of year (i.e., seasonal conditions), the requirements of the household economy (i.e., space or materials necessary for domestic production), population pressure, or changes in household membership (i.e., birth, marriage, or death). Cultural factors may include changing expectations in building form or in the status or identity of the building's user(s) (cf. Banning 2010; Guengerich 2014; Love 2013).

communication/isolation between abutting rooms/structures have not been preserved.[357] In an effort to minimize the effects of such uncertainties in my study of the settlement architecture at the Settlement Slope and al-Khafaji, I refer to other archaeological and ethnographic sites on the Oman Peninsula that feature examples of well-preserved architecture for interpretive comparisons.

Despite the various limitations of Bat's ancient settlement remains, I argue that interpretations of those remains can substantially contribute to our understanding of Umm an-Nar society at Bat and beyond. By utilizing the site's preserved architecture as a chronological and interpretive framework, I am able to overcome many of the methodological and interpretive challenges presented by Bat's preserved settlement contexts. In the sections that follow, I piece together the Umm an-Nar houses and households represented in the excavated portions of the Settlement Slope and al-Khafaji through the surviving architecture's use-lives, cultural/vernacular qualities, and associated material culture and activities. Finally, in the chapter conclusion, I offer a (re)interpretation of Bat's Umm an-Nar society based on household organization and economy.

6.3 The Settlement Slope

Although the Settlement Slope is the first location on the Bat landscape where evidence of domestic occupation and rectilinear architecture was identified, the Slope's

[357] In agglomerative architectural environments, common in the Ancient Near East, buildings are constructed immediately abutting one another. Discrete buildings are identified through interconnected rooms, rather than in divisions in the architectural structure (cf. Nishimura 2012; Stone 1987; see also **Section 5.5**).

occupational contexts were not targeted for broad excavation until BAP's 2013 field season. Prior to this, results from a test trench excavated through the center of the Slope's largest known building – Structure SS7 (Site 1155) – caused Karen Frifelt to conclude that contexts within the other rectilinear structures visible on the hillside were all likely too damaged by erosion to provide reliable information (1985:99). As a result, the remainder of the site was left largely untouched until BAP's excavations of its monumental Early Umm an-Nar tower (Site 1156) from 2010 to 2012. During her 2011-12 excavations targeting the tower, Anne Mortimer unexpectedly uncovered the remains of a slightly later Umm an-Nar occupational phase running over the level of the monument (Mortimer 2016:142; see also **Section 4.3.1**). This discovery of relatively well-preserved settlement architecture prompted BAP to undertake the horizontal excavation of the flatter area just northwest of the tower, where it was hypothesized that the Umm an-Nar occupation continued and the effects of erosion would be minimal. From 2013 to 2014, excavations in this northwestern section of the Settlement Slope revealed a dense concentration of Umm an-Nar and Wadi Sûq rectilinear architecture and occupational debris (see Fig. 6.1).[358]

With this section, I present the results of BAP's excavations of the Settlement Slope rectilinear architecture and, where possible, offer interpretations of its socioeconomic significance. As mentioned above (see **Section 6.2**), even the best-preserved of the Settlement Slope's contexts have suffered from stratigraphy-obscuring

[358] Excavations at the Settlement Slope were overseen by a site director (Anne Mortimer 2012; Chris Thornton 2013-2014). Each trench was managed by a square supervisor with a team of between two to four paid workers. The BAP project members who participated in the excavations of occupational contexts at the Settlement Slope are named in the acknowledgements.

Fig. 6.1: Settlement Slope grid and architectural plan indicating Umm an-Nar and Wadi Sûq architectural phases. See below for more detailed plans.

deflation, intrusive pits, and often contain little portable material culture. To overcome these shortcomings in the archaeological record, I instead use the surviving architecture as the foundation for my interpretations of the site's Umm an-Nar community. Looking at each building holistically, I develop an architectural sequence and use-life that ties into the site chronology and serves as a framework for understanding that building's possible social function(s) over the course of its existence. After discussing the structures individually, I then consider them collectively and propose a broad sequence of occupation for all excavated areas of the Settlement Slope. Within this chronological structure, I then identify patterns of domestic behavior, associated building layouts, and possible indicators of the household groups that made up the Settlement Slope community.

BAP's research on the Settlement Slope is organized according to a 5x5 m grid that follows the natural angle of the hillside.[359] Excavators recorded their finds according to grid square and defined all contexts (natural, anthropogenic, or arbitrary), features, and artifacts as 'lots' – each with a unique lot number. While the specific contexts encountered in each area of the site vary, a broad stratigraphic sequence appears to persist throughout the known extent of the Settlement Slope. The site's natural stratigraphy, as initially defined by Frifelt and later confirmed by BAP (cf. Mortimer 2016:124, Fig. 6.2), consists of: a thin layer of gravely surface sediment; a layer of fine, grey, aeolian silt; and a layer of homogenous, dense, brownish grey clay resting atop a bedrock of friable, greenish-brown limestone. The thickness of each layer, especially of the fine aeolian silt, varies from location to location. Accumulation is most substantial along the sheltered lower extent of the slope and in the flat northwestern end of the hillside. The full 800 years of the Settlement Slope's Umm an-Nar occupation (the focus of this section) are condensed within the layer of undifferentiated, homogenous, grey clay.

[359] All elevation measurements refer to an arbitrary datum (0,0) with UTM 40N coordinates of 474157.809 E, 2572945.54 N.

Two previous studies of archaeological materials on the Settlement Slope have produced phased chronologies of cultural activity at the site: Mortimer's 2016 publication on the tower and its surroundings and a 2016 Durham University Masters thesis by Alex Kerr on the Umm an-Nar/Wadi Sûq architectural transition as seen in BAP's northwestern excavations. Both of these chronologies relate to their specific areas of study, namely the tower in the former and the northwestern area in the latter. Furthermore, each study relies on different criteria for defining their sub-phases. The Bat site chronology that I have developed for this dissertation incorporates the results from both of these studies while also aiming to build upon them through the new architectural and social (i.e., household) interpretations presented below (see **Section 6.3.6**).

Bat Site Phase	Tower Phase (Mortimer 2016)	NW Architectural Phase (Kerr 2016)	Defining Activity	Date
I	-	-	Middle Neolithic settlement/encampment	ca. 5000-4400 BCE
II	-	-	Hafit settlement/ encampment	ca. 3100–2800 BCE
IIIa	1	-	Early Umm an-Nar tower use and metallurgical activities	ca. 2800-2650 BCE
IIIb	2	-	Abandonment	ca. 2650-2500 BCE
IVa	3	1a & 1b	Middle Umm an-Nar leveling of tower and in-filling of ditches	ca. 2500 BCE
IVb	4	1a & 1b	Middle Umm an-Nar initial occupation	ca. 2500-2400 BCE

Bat Site Phase	Tower Phase (Mortimer 2016)	NW Architectural Phase (Kerr 2016)	Defining Activity	Date
IVc	4	1a & 1b	Middle Umm an-Nar occupation and modifications to some buildings	ca. 2400-2200 BCE
V	4	1a & 1b	Late Umm an-Nar Occupation	ca. 2200-2000 BCE
VI	5	2a-c	Early Wadi Sûq platform construction & occupation	ca. 2000-1900 BCE
VII	-	3	Middle-Late Wadi Sûq occupation and funerary activity	ca. 1900-1600 BCE
VIII	-	4	Late Bronze Age visitations	ca. 1600-1300 BCE
IX	7	-	Iron Age visitations	ca. 1300-600 BCE
X	7	-	Islamic visitations	ca. 700-1900 CE
XI	8	-	Natural Accumulation	ca. 1900 CE - Present

Table 6.1: Settlement Slope occupational phasing.

In the sub-sections below, I provide a detailed account of BAP's excavation results from areas of the Settlement Slope where evidence of Umm an-Nar Period occupation was identified. These accounts are organized according to structure and trench numbers and primarily focus on the uncovered architectural remains. Excavated areas discussed in this section are Structure SS1 (Trenches 0978-0980 & 1053-1055), Structure SS2 (Trenches 0985-0988 & 1060-1063), Structure SS3 (Trenches 0980-0981 & 1055-1057), Structure SS4+ (Trenches 0830-0831, 0905-0906, & 0980-0981), and the superimposed Structures SS10 and SS11 (Trenches 0902-0903 & 0977-0978).[360] In the section conclusion, I present the Settlement Slope's overall occupational sequence and highlight significant patterns in the settlement remains.

6.3.1 Structure SS1 (Trenches 0978-0980 & 1053-1055)

Of the rectilinear structures excavated by BAP on the northwestern end of the Settlement Slope, Structure SS1 provides us with both the longest and the clearest occupational history so far known at the site. This building, located in roughly the center of the excavated northwestern area, was excavated over the course of two field seasons (2013 & 2014).[361] The structure's long use-life begins in the Middle Umm an-Nar (ca. 2500 BCE) and continues for over 800 years into the Middle Wadi Sûq Period, while contexts from beneath the building attest to an occupation of the area that began as early as the Middle Neolithic. Over the course of its history, SS1 was expanded to the north, east, and west and eventually became the structural core of an agglomerative architectural complex. The various components of this complex are roughly aligned with the natural slope of the hillside and, in the case of Structure SS1, run along the northern side of the gravel street that skirts the lower edge of the Settlement Slope.[362]

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[360] Due to a miscalculation in grid location, the arbitrary grid numbers used to record BAP's 2013 and 2014 excavations to the northwest of the Settlement Slope tower are offset 5 m south of the grid used to record BAP's 2012 excavations on and to the southeast of the tower. Trench numbers reported in this dissertation (as well as in Kerr 2016) are consistent with project records. However, it should be noted that the two grids depicted on Fig. 6.1 refer to different datum points (cf. Mortimer 2016).

[361] At its largest extent, Structure SS1 spreads across Trenches 0977-0980 & 1052-1055.

[362] It is possible that the Settlement Slope continued further to the south, downhill from the preserved remains. However, any surviving trace of this occupation has either eroded down the hillside or is buried beneath the accumulated wadi silts.

Excavations in an around Structure SS1 confirmed our expectations that the gentle terrain in this part of the Settlement Slope would have suffered minimal damage from erosion. We encountered a substantial (40+) layer of dense, grey-brown clay that contained the settlement's Bronze Age occupational contexts set beneath a thin (2-5 cm) surface layer of gravel and a somewhat thicker (10-15 cm) collection of aeolian silt. With the exception of select instances discussed below, it was not possible to identify stratifications within this clay layer, although we found Structure SS1 to contain contexts far more intact than those of steeper areas to the southeast (c.f. Friflet 1985:99; Structure SS2 in **Section 6.3.2**). The architectural and occupational remains of Structure SS1 are thus prime candidates for reconstructing the building's use-life through its structural phases and associated material culture, rather than through relying on internal stratigraphy.

Before we consider the details of Structure SS1, however, we must first establish the two occupational phases found in this area that predate the Umm an-Nar building (see Fig. 6.2). The first of these phases (Pre-SS1-1A) is the earliest known human presence anywhere at Bat. A small (1x3 m) sounding was excavated through the western half of SS1 in order to explore the building's full occupational history. Roughly 50 cm below the level of SS1's Middle Umm an-Nar (phase 3) floor and just above bedrock, we uncovered an occupational surface (see Fig. 6.3). The surface consists of a flattened area of the dense, yellowish green clay that is typically found immediately above bedrock in this area of the Bat landscape. Resting on the clay layer was a large stone situated next to a small fire pit and what may be the remains of a stone wall just visible in the sounding's

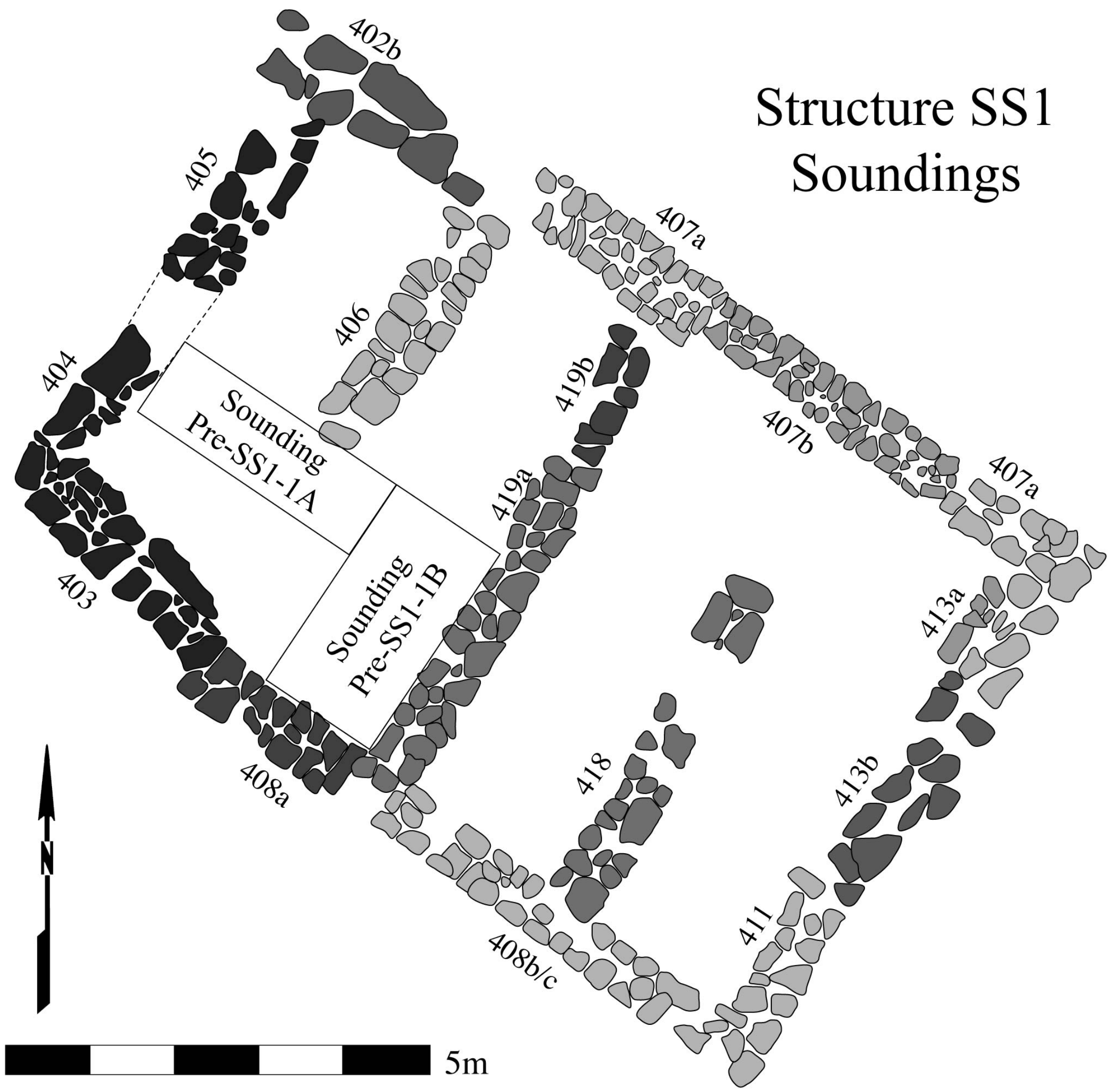

Fig. 6.2: Locations of soundings below Structure SS1.

northern profile. A C14 sample taken from the fire pit provides a Middle Neolithic radiocarbon date range of 4850-4720 cal. BC (2-σ). The nature of this Neolithic occupation is uncertain based on the limited evidence and exposure in the sounding. Yet, a small wall feature of five large, shaped stones suggests some degree of labor investment in the location. The second pre-Umm an-Nar occupational phase (Pre-SS1-1B) is attested only through an ash lens that was encountered in a similar small sounding excavated in the southwestern quarter of Structure SS1. The ash layer was found throughout the

1.5x2.8 m sounding and ran beneath the foundations of the SS1 phase 3 wall 419a. Radiocarbon analysis of charcoal from this ash lens yielded a Hafit Period date range of 3115-2935 cal. BC (2-σ). The ash layer also contained several copper prills, which may indicate that copper smelting was already taking place at the Settlement Slope as early as the Hafit Period.[363] The presence of such early (Neolithic and Hafit Period) contexts in a site known for its Umm an-Nar remains is a testament to Bat's enduring significance as an occupational oasis.

Fig. 6.3: Middle Neolithic sounding.

With the location's early history established, we can now move on to the first phase of Structure SS1's architectural history (SS1-1; see Fig. 6.4). In SS1 phase 1, we find the simple outline of a rectangular building (roughly 9x8 m) that survives only in the fragmentary exterior walls 406, 407a, 408b/c,[364] 411, and 413a. These walls are all

[363] Due to the small size of these prills, it is possible that they my be intrusive from later (Umm an-Nar) phases when there is far greater evidence for metallurgical activity.

[364] Wall 408b/c is a single architectural feature that was arbitrarily recorded as two related features during excavation.

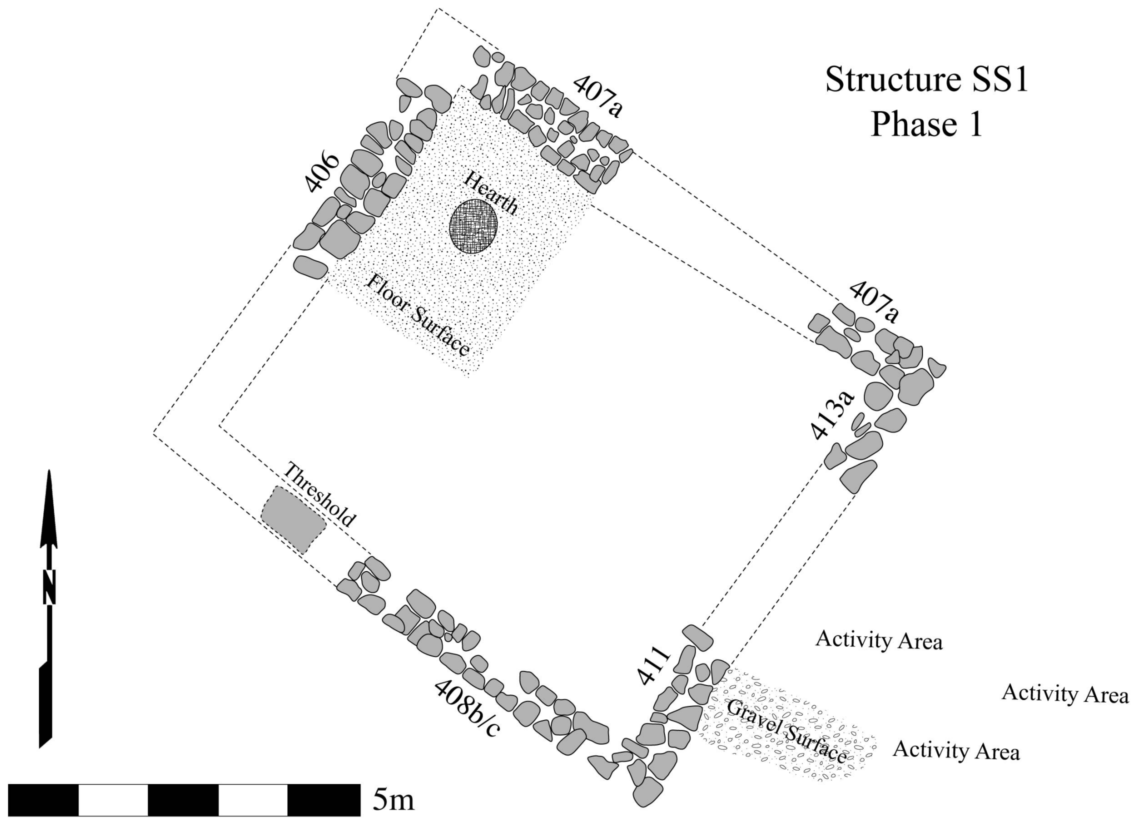

Fig. 6.4: Structure SS1 Phase 1 plan. Northwestern activity area not shown

constructed in the same architectural style and rest at the same elevation in the site's dense clay layer.[365] They are composed of two parallel rows of roughly dovetailed stones set horizontally into a mud mortar. All measure between 60 and 80 cm in width and stand two to three preserved stone courses in height.[366] In certain examples, stones forming the exterior face of the wall foundations appear to have been roughly hewn to create a smooth edge. The contemporaneity of these walls is further supported by their structural interaction. The building's northeastern and southeastern corners are formed by the bonded joins of walls 407a and 413a in the north and by 408b/c and 411 in the south.

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365 Between 90 and 110 cm below datum. The difference in elevation can be accounted for with the natural slope of the underlying hillside. The northeastern wall foundations thus rest at a slightly higher elevation than do the contemporary southwestern foundations.

366 Kerr defines this style of wall construction at the Settlement Slope as Type 1 (2016:82-83).

The break between walls 411 and 413a in Structure SS1's eastern end may suggest the location of the building's original entryway.[367] This gap was later filled with wall 413b, which is associated with Structure SS3 to the east (see **Section 6.3.3** below).

The northwestern half of Structure SS1 in its earliest phase (SS1-1) is somewhat less clear than its southeastern half. The western edge of the building is marked by wall 406. However, later pitting and structural activity has obscured the relationship between walls 406 and 407a in the north and between walls 406 and 408b/c in the south.[368] Presumably, these walls would have formed bonded corners, as seen in the building's eastern half. The northwestern end of wall 408, in particular, appears to have been remodeled several times, with new building phases constructed directly on top of earlier foundations (see discussion of walls 408a and 403 below). A second possible location for SS1's entryway is suggested by a particularly long and deeply set stone in the surviving northwestern end of 408b/c.[369] With this doorway, Structure SS1 would have had direct access to the street that marks the southern extent of the known activity on the Settlement Slope.

Within Structure SS1 only a small section of clay floor surface associated with this first occupational phase (SS1-1) was identified. This clay surface was most evident

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[367] If true, this entryway would match that of Structure SS2 (see **Section 6.3.2** below). However, it is also possible that walls 411 and 413a were initially a single construction that was partially removed and patched with the addition of Structure SS3 to the east.

[368] The stone robbing that obscures the southwestern half of Structure SS1's earliest phase likely dates to the Wadi Sûq Period, when the building was reoccupied and expanded to the west. A series of pits also indicates subsequent Late Bronze Age and Iron Age activity, which notably damaged the corner of walls 406 and 407a.

[369] A full plan of wall 408b/c's northwestern end is unavailable because of the later wall 408a resting on top of it. Large threshold stones marking doorways comparable to that found in wall 408b/c have been found in rectilinear Umm an-Nar structures at various sites, such as Maysar 1 (Weisgerber 1981:191-197) and Umm an-Nar Island (Frifelt 1995:24).

in the building's northwestern quadrant, where it was level with the foundations of walls 406 and 407a and featured a small hearth. Radiocarbon analysis of charcoal from this hearth provides a date range of 2480-2315 cal. BC (2-σ) and places Structure SS1's earliest use phase comfortably within the Middle Umm an-Nar Period. Also found level with the floor surface and the Phase 1 walls are a collection of black-on-red painted ceramic sherds stylistically associated with the Middle Umm an-Nar Period and a shell scraper.[370]

Beyond Structure SS1's walls, we identified two activity areas loosely associated with the phase 1 occupation to the building's northwest and southeast. Approximately 2 m northwest of the building's corner the first of these activity areas was marked by a fire pit lined with burned stones.[371] As no artifacts were recovered in connection with this feature, its function remains uncertain. Nevertheless, while it is not possible to directly link the fire pit to Structure SS1, a C14 date from within the pit (2430-2195 cal. BC, 2-σ) indicates that it was in use at the same time as the nearby building. To the southeast of Structure SS1, just beyond the location of the possible eastern doorway, we find a second activity area more directly associated with the building. Here, a 10 cm thick layer of accumulated ashy silt and occupational refuse was found resting on a packed clay and cobble surface level with and running up to the SS1 phase 1 wall foundations.[372] The

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[370] This scraper is shaped from an oceanic bivalve shell, indicating interaction between the residents of the Settlement Slope and the coast. However, while the elevation of the shell's find spot matches that of the phase 1 wall foundations, it was not found on their associated floor surface.

[371] Excavation exposures of this area are limited due to the presence of later phase 4 remains above the phase 1 (Middle Umm an-Nar) contexts. A Wadi Sûq cist tomb (phase 6) also restricted access to the underlying Umm an-Nar pyrotechnic installations (for further discussion, see Kerr 2016:259).

[372] Exposures of this exterior Umm an-Nar activity area are also limited by the presence of the later (Late Umm an-Nar/SS1-4) Structure SS3 above it (see **Section 6.3.3**).

irregular surface was pocketed with accumulations of ash and charcoal, a C14 sample from which dates the activities in this area to 2470-2315 cal. BC (2-σ), while the overlying rubbish layer contained a dense concentration of Middle Umm an-Nar style ceramic sherds and oven fragments. The ashy layer also contained nine small pieces of copper scrap and a fragment of a crucible. Such an assemblage and its location near the SS1 doorway supports an interpretation of the space as an outdoor living area connected to the adjacent building that was used for a variety of purposes, including food and metallurgical craft production.

The second phase of Structure SS1 (SS1-2) is marked by two structural alterations made to the original building's northern walls 407a and 413a (see Fig. 6.5). At a point in its early history, a large (3 m) section of wall 407a was demolished and replaced with the slightly thinner (ca. 50-60 cm) wall 407b. The new wall abuts the truncated ends of wall 407a to the east and west. Aside from its slimmer width, wall 407b is structurally comparable to 407a and rests at approximately the same elevation with no indication of a foundation cut. A piece of charcoal extracted from the mud mortar between the first and second courses of wall 407b provides a date range of 2450-2265 cal. BC (2-σ). Just east of this, the inner face of wall 413a is reinforced with a single row of stones. The new stones used in the reinforcement match the others used to construct 413a in size and rest on the same elevation level. The spatial relationship of both these reconstruction events suggests that they occurred early in the building's use-history, before a detectable amount of soil could accumulate and change the level of the wall foundations. We can, thus,

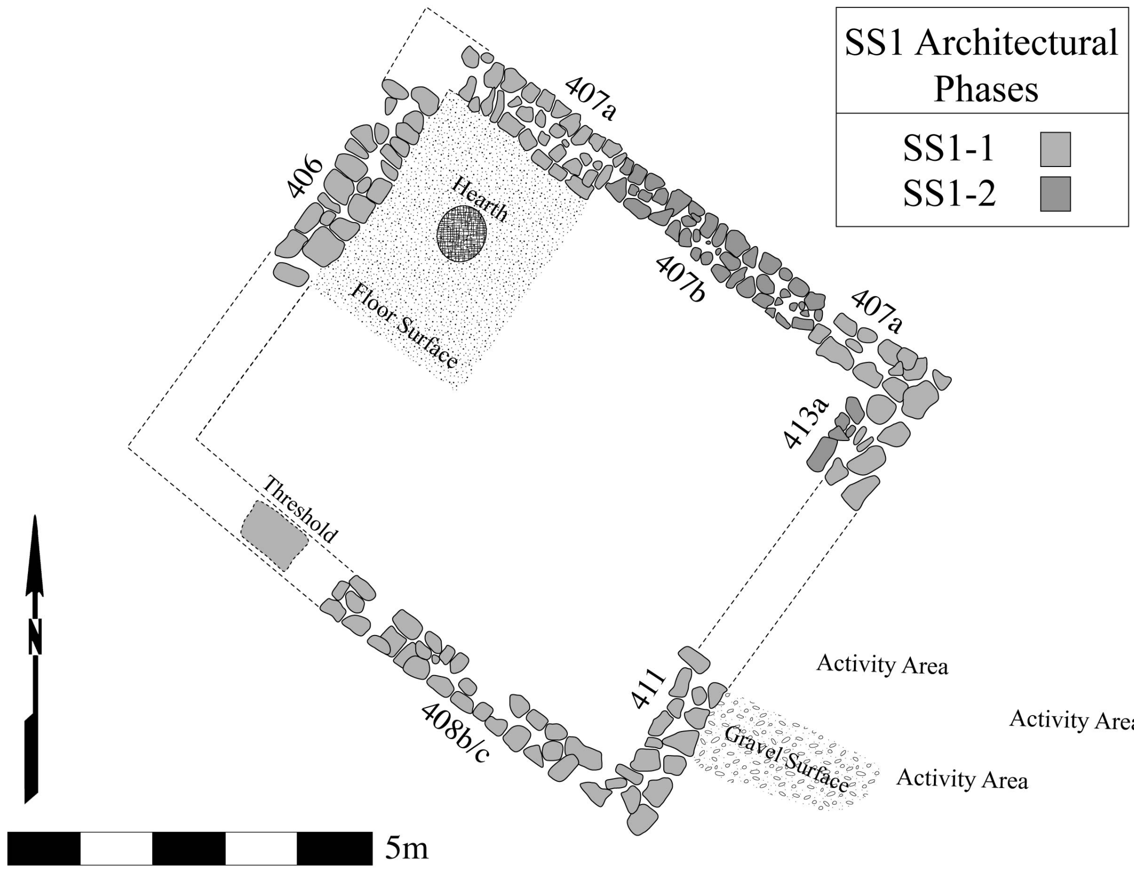

Fig. 6.5: Structure SS1 Phase 2 plan.

consider them as part of the same Middle Umm an-Nar structural phase and building maintenance event.

Moving forward in SS1's structural history (SS1-3), we see the building's interior subdivided into three narrow rooms, each approximately 2 m in width (see Fig. 6.6). Two northeast-southwest walls, 418 and 419a, are constructed abutting the inner face of wall 408b/c and extend approximately 2/3 the distance across the width of the building's interior space (ca. 4.5 m). Neither wall appears to have continued beyond their preserved extents (wall 418 has a particularly clear terminating northern end) and thus gave Structure SS1 a 'semi-integrated' interior layout. As shall be seen below (see **Sections**

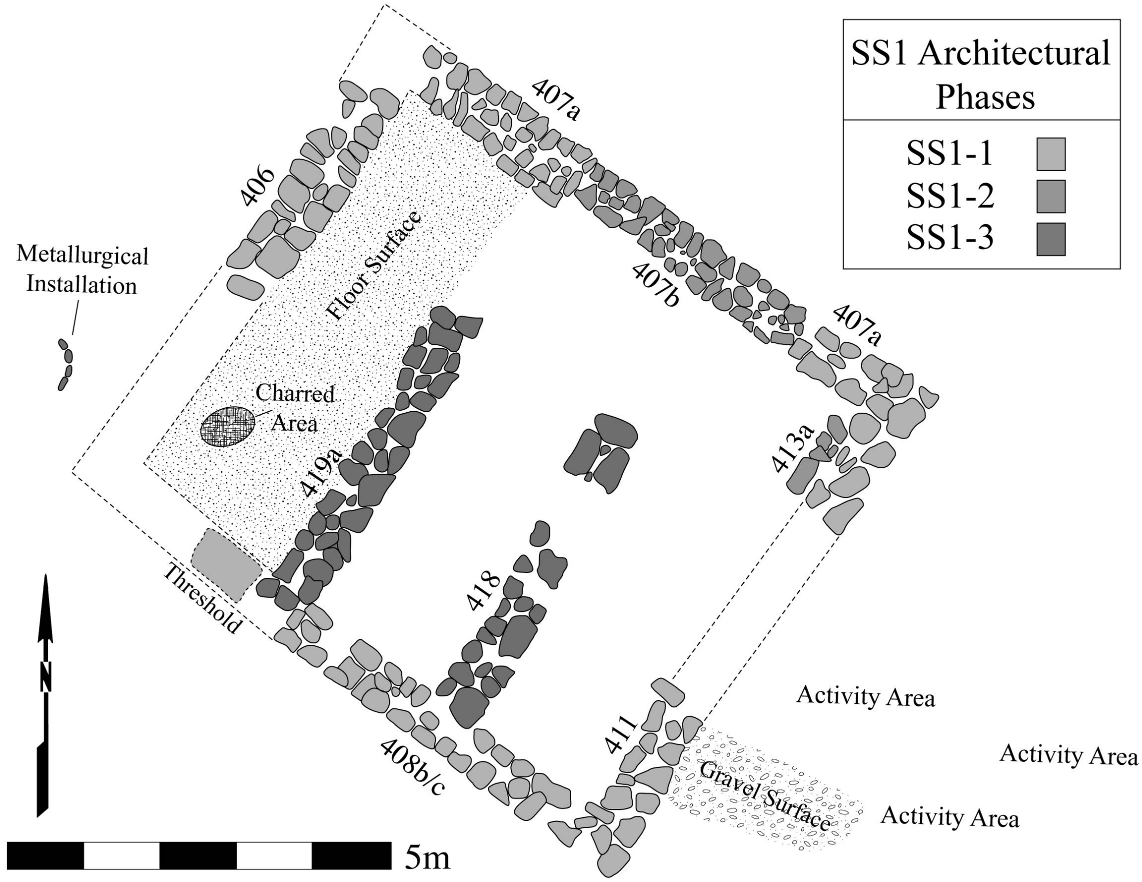

Fig. 6.6: Structure SS1 Phase 3 plan.

6.3.6 and **6.4.6**), this semi-integrated building layout is frequently found in Bat's settlement architecture. It is characterized by an interior plan is partially partitioned by one or more cross-walls that extend across at least half the width of the building but do not form fully enclosed rooms. Buildings with this layout thus have structurally defined interior spaces, but access to those defined spaces does not appear to have been controlled by formal doorways. Walls 418 and 419a share the same construction style as featured in the existent structure. However, their foundations rest at a level some 15 cm above those of the exterior walls. This subdivision in SS1's layout can, therefore, be interpreted as reflecting an increasing segmentation and possibly specialization of the building's interior space over time (cf. Banning 2010; Kent 1990:127; 1991:439-45; Pfälzner 2015; Rapoport 1990:9-10; Steadman 2000).

We can glimpse one such specialized function in the building's northwestern-most room. Here a hard-packed surface of clay and pebbles was identified running level with the phase 3 wall 419a foundations. This surface featured clear evidence of metallurgical activity in the form of copper prills and slag, crucible fragments, and a nebulous area of burnt stone and charring. Such interior metallurgical activity is mirrored by an exterior semicircular installation of small stones, roughly 1 m in diameter, found just northwest of the building and level with its interior phase 3 features.[373] The precise function of this feature is not clear, yet the high number of copper prills recovered from its proximity supports its association with the other metallurgical contexts. A similar phase 3 floor surface was not identified in Structure SS1's other rooms. However, a collection of ceramic finds from comparable elevations to the phase 3 wall foundations stylistically date this use phase to the latter half of the Middle Umm an-Nar Period.[374] Particularly noteworthy among these finds is the near-complete upper half of a large, elaborately painted jar found in the space between walls 418 and 419a (see Fig. 6.7). The jar's spiral and ladder decorative motif is comparable to others from well dated Middle Umm an-Nar funerary contexts at Hili 8 (phase IIf; Cleuziou 1989a:77, Pl. 24 & 27; Méry 2000:129, Fig. 76, no. 8 & 9) and Tell Abraq (Potts 1990b: Fig. 56, no. 2) as well as from the occupational contexts at the nearby Kasr al-Rojoom (Frifelt 1976:66, Fig. 6 & 9).

[373] This stone installation was set into a depression in a surface just beyond the Structure SS1 walls. However, it could not be fully exposed due to the later phase 6 wall 403 running over it.

[374] Also found within Structure SS1 at this level are a small collection of copper prills and numerous floating charcoal flakes.

Fig. 6.7: Fragment of Middle Umm an-Nar jar from Structure SS1 Phase 3.

The next two architectural phases visible in Structure SS1's remains (SS1-4 and SS1-5) are stylistically well-defined in terms of their pottery and construction methods and, in the case of phase 5, dated. However, the order of their appearance in SS1 (i.e., if the phase 4 addition pre- or post-dates the phase 5 walls) is somewhat less clear. Both construction events are situated at the same level of elevation and at no point do walls from one phase interact with those of the other. As a result, the methods of determining an architectural sequence used elsewhere in this section are not effective for parsing the temporal relationship between SS1's phases 4 and 5. The sequence that I suggest here is therefore tentative and depends heavily on stylistic comparison with more confidently dated architecture and ceramics from elsewhere on the Settlement Slope and at other Umm an-Nar and Wadi Sûq settlement sites on the Oman Peninsula.

In SS1's fourth architectural phase (SS1-4), we see the building's transition from a freestanding structure to the center of a larger architectural complex (see Fig. 6.8). A series of walls forming at least one room is constructed in the space to the building's southeast (Structure SS3, see **Section 6.3.3** below) and a single room is constructed to its

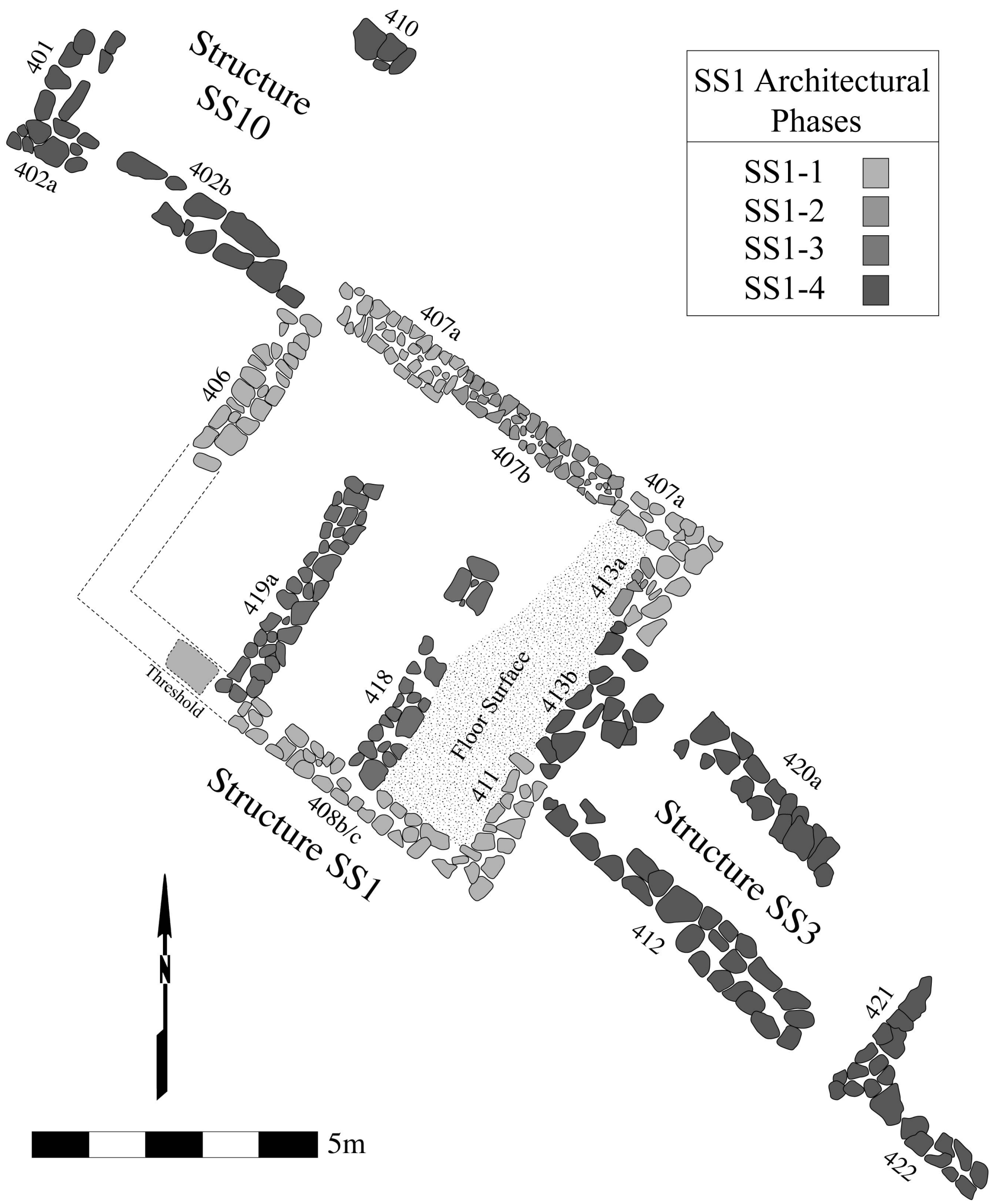

Fig. 6.8: Structure SS1 Phase 4 plan.

northwest (Structure SS10, see **Section 6.3.5** below).[375] It is not clear to what extent either of these new additions interacted with Structure SS1 (i.e., whether they should be considered as independent structures or as part of the original SS1 building). While each will be discussed independently below, they are mentioned here as support for defining the architectural style and occupational phase. The walls from this phase (SS10 walls 401, 402a, 402b, & 410; SS3 walls 412, 413b, 420, & 421) are composed of two rows of large, unworked stones set horizontally into a mud mortar with a narrow spine of stone rubble and are preserved to a height of two to three courses. The stones composing these walls are notably larger than those used in the earlier (SS1 phases 1-3) walls and, in most examples, form correspondingly wider wall foundations (70-80 cm).[376] This architectural style is also found in the Late Umm an-Nar extension of Structure SS2 (SS2 phase 3) to the east, where a *terminus post quem* is provided by the Early Wadi Sûq platform constructed over the building (see wall 514 in **Section 6.3.2** below).[377]

The clearest interaction between the phase 4 walls and SS1's earlier construction phases is in the building's southeastern end.[378] Here the space between the phase 1 walls 411 and 413a was filled with the phase 4 wall 413b, thus closing SS1's possible doorway

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[375] Notably, both these additions overlay the earlier Middle Umm an-Nar exterior activity areas associated with Structure SS1.

[376] Stones used to construct the phase 4 walls average 50 cm in length, while those used in phases 1-3 average 30 cm. Walls 401, 402a, 402b, and 410 all measure between 70 and 80 cm in width. Wall 413b, in contrast, is a narrower 65 cm. Presumably, this phase 4 wall was designed to be thinner in order to fit with the previously existing phase 1 walls 411 and 413a that it abuts. In his analysis, Kerr defines this style of wall construction as Type 3 (2016:99-100).

[377] Similar construction styles can also be found at Late Umm an-Nar sites elsewhere on the Oman Peninsula, including Maysar-1 (Weisgerber 1980; 1981), Umm an-Nar Island (Friflet 1995), and Amlah (de Cardi *et al*. 1976). For further discussion of this architectural style, see Kerr 2016:173.

[378] The phase 4 style wall 402b of Structure SS10 appears to abut the northwestern corner of Structure SS1, however this relationship is obscured by the same later (Iron Age?) pitting that damaged the phase 1 corner of walls 406 and 407a.

to the exterior activity area to the east. This new wall abuts wall 411 to the south and 413a to the north and matches them in width, yet runs at a slightly sharper northeast-southwest angle than its neighbors.[379] The wall 413b foundations rest 30 cm above those of walls 411 and 413a, attesting to its later construction date. A floor level of hard-packed gravel and clay was identified level with the wall 413b foundations in the northeastern corner of SS1. Resting atop this surface were several noteworthy finds, including: a large jar sherd painted in a typical Late Umm an-Nar style (cf. Mary 2000:137, Fig. 80); a basalt grinding quern; a small collection of copper prills; a fragment of a copper sickle (see Fig. 6.9); and a large, long copper pin with a spiraled shaft (see Fig. 6.10). This unusual collection of finds supports dating wall 413b, and by extension all the phase 4 style walls and contexts, to the Late Umm an-Nar Period.[380] These finds

Fig. 6.9. Copper sickle from SS1 Phase 4, found in the northeastern room.

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[379] The orientation of wall 413b matches that of Structure SS3 to the east, rather than of Structure SS1. Although integrated into SS1, this new wall appears to have filled the potential SS1 doorway in order to close the eastern end of the building and define the space for the new Structure SS3.

[380] This periodization also agrees with that of Structure SS2's stylistically comparable wall 514 (see **Section 6.3.2** below).

Fig. 6.10. Copper pin with spiraled shaft from SS1 Phase 4, found in the northeastern room.

also allow us to interpret domestic and metallurgical functions for the building's eastern interior space.

The fifth architectural phase for Structure SS1 (SS1-5) is represented by two walls (408a & 419b) built in a distinctive, new construction style (see Fig. 6.11). These walls are composed of two rows of large (ca. 50x30x15 cm) vertical stone slabs set into a mud mortar and have a core of stone rubble and gravel. The walls are somewhat thinner than SS1's earlier construction phases (50-65 cm) and are preserved only a single course in height.[381] With the addition of the two phase 5 walls, the floor plan of Structure SS1 was significantly altered. The building's northwestern room is fully enclosed from the remaining two semi-integrated rooms by the addition of wall 419b, which abuts the northern end of wall 419a and the southern face of 407a.[382] Additionally, the structure's doorway to the street, marked by the large threshold stone in wall 408b/c, is blocked by

[381] Type 2 in Kerr's architectural typology (2016:93).

[382] The foundations of wall 419b rest approximately 15 cm above those of the phase 3 wall 419a and 30 cm above those of phase 1 wall 407a.

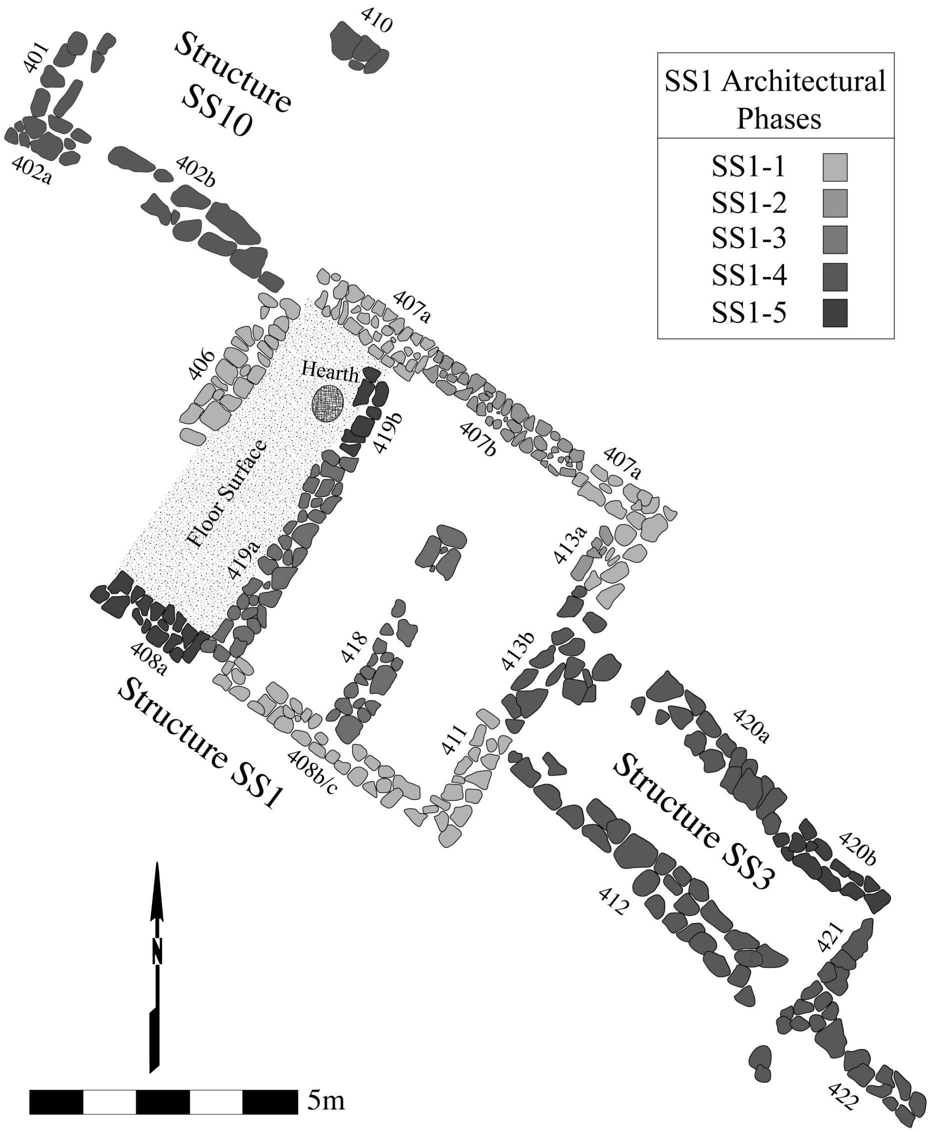

Fig. 6.11: Structure SS1 Phase 5 plan.

the construction of wall 408a directly atop the earlier foundations (see Fig. 6.12). It is unclear in SS1's new layout where the point of entry was located. This fifth architectural phase of Structure SS1 is firmly dated to the Early Wadi Sûq Period by both radiocarbon analysis and associated material culture. A large, stone-lined hearth was uncovered next

Fig. 6.12: Profile view of the phase 1 threshold stone in wall 408b/c and phase 5 wall 408a running over it.

to and level with the foundation of wall 419b.[383] Charcoal from this feature yielded a C14 date of 1950-1770 cal. BC (2-σ). The hearth's edges mark the level of a contemporary floor surface, from which a collection of Early Wadi Sûq style ceramics were also recovered.[384]

The final construction phase (SS1-6) visible in Structure SS1's remains before its ultimate abandonment is represented by the addition of two irregular walls (403 and 404/405) to the building's northwestern end (see Fig. 6.13). The construction style of these walls is more irregular than that of the previous styles already discussed. They are composed of a mixture of large, unworked boulders (up to 80 cm long), roughly hewn,

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383 This hearth is notably located not far from the location of the underlying phase 1 hearth that provides the Middle Umm an-Nar C14 date for that use phase. This repeated hearth location suggests that, although the building's layout was changed, its function likely remained consistent across use phases.

384 For an in depth discussion of the Wadi Sûq ceramics recovered the BAP excavations at the northwestern end of the Settlement Slope, see Kerr 2016:221-250.

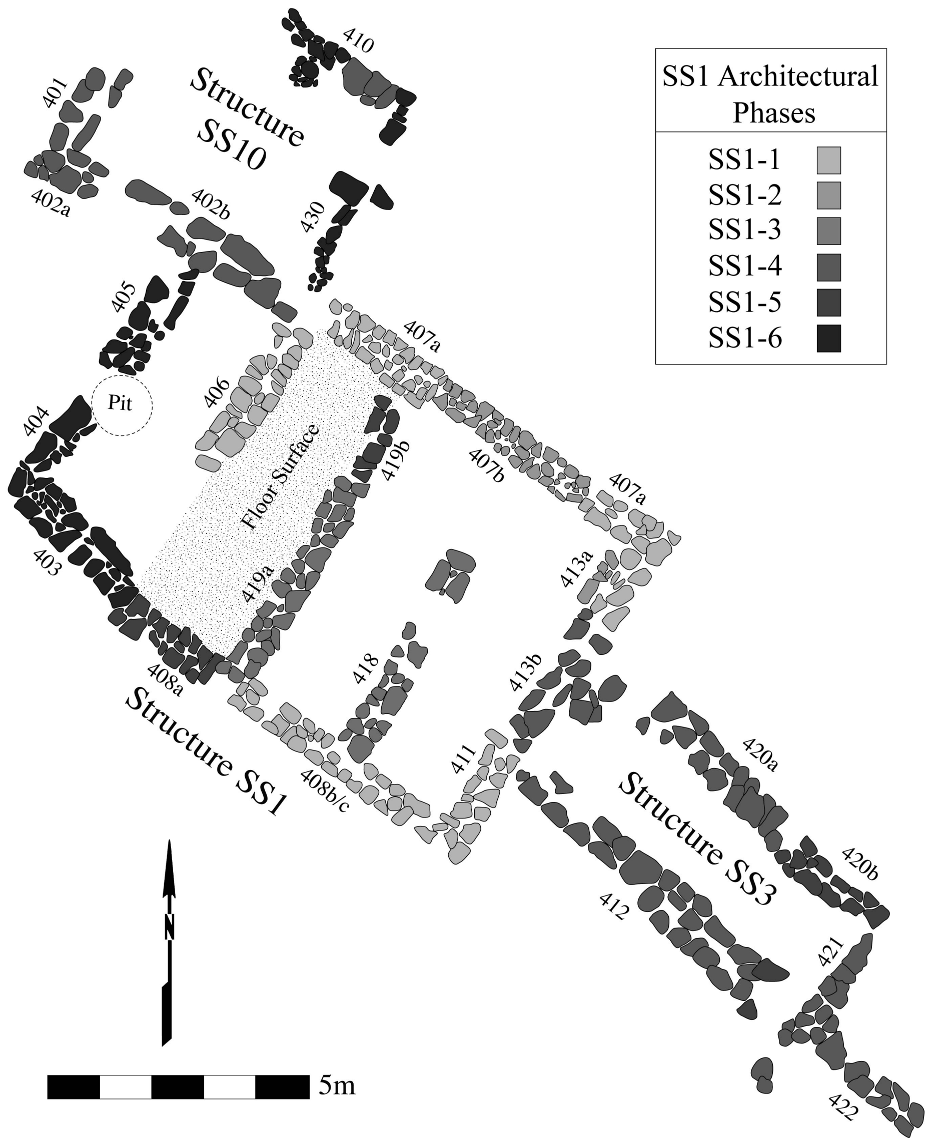

Fig. 6.13: Structure SS1 Phase 6 plan.

rectangular stones likely robbed from earlier structures (such as the nearby Early Umm an-Nar tower), and small, irregular stones. All of these are set into the site's natural clay, rather than into mud mortar, and are preserved only a single course in height.[385] The northwest-southeast wall 403 rests directly on the preserved uppermost course of the phase 5 wall 408a and extends Structure SS1 further to the northwest.[386] This

[385] In his analysis of the northwestern architecture, Kerr defines this wall style as Type 5 (2016:112-113).

[386] It is possible that the destruction of wall 406's southern end also dates to the final construction phase.

relationship clearly places the phase 6 construction event later in time than the Early Wadi Sûq phase 5. Wall 404/405 forms a bonded corner with 403 in the southwest and abuts the southern face of Structure SS10's wall 402b in order to create an enclosed room. A large pit possibly dating to the Iron Age cuts through the center of wall 404/405, giving the false impression of a doorway dividing two walls. No floor surface was identified within this westernmost room and its interior contexts were heavily disturbed by the Iron Age pitting activity. Nevertheless, a use date in the Middle-Late Wadi Sûq Period is probable for the phase 6 contexts based on the architectural relationship with Structure SS1's phase 4 and 5 walls and ceramics recovered within the room fill.[387]

Structure SS1 fell out of use by the end of the Wadi Sûq Period.[388] After its abandonment, the building was occasionally revisited by Late Bronze Age and Iron Age groups, as attested by a series of pits dug into the SS1 contexts (Kerr 2016).[389] These pits provide us with small amounts of diagnostic pottery and evidence of copper working, suggesting that metallurgy continued to play a role at the Settlement Slope even after it no longer supported a resident community. However, Structure SS1 was never again inhabited and was gradually covered in a layer of wind-blown silt.

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[387] For a more detailed discussion of the Settlement Slope's Wadi Sûq occupation, see Kerr 2016:270-275; 280-289.

[388] Ceramics collected from the area within and surrounding the building include few that suggest that Structure SS1 was occupied later than the Middle Umm an-Nar Period.

[389] Late Bronze Age sherds were identified by Kerr (2016) with the assistance of Derek Kennet and Christian Velde.

Structure SS1 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
I	Pre-SS1-1A	Middle Neolithic settlement/encampment	ca. 5000-4400 BCE
II	Pre-SS1-1B	Hafit ash lens	ca. 3100–2900 BCE
IVa-b	SS1-1	Founding of Structure SS1 with the construction of walls 406, 407a, 408b/c, 411, and 413a; activity areas northwest and southeast of building	ca. 2500-2400 BCE
IVa-b	SS1-2	(Re)Construction of wall 407b and reinforcement of wall 413a's interior face	ca. 2500-2400 BCE
IVc	SS1-3	Addition of interior walls 418 and 419a, subdividing SS1 into three rooms; metallurgical activity in northwestern room	ca. 2400-2200 BCE (?)*
V	SS1-4	Addition of wall 413b (possibly blocking earlier doorway)	ca. 2200-2000 BCE (?)*
VI	SS1-5	(Re)Construction of walls 408a and 419b; blocking of earlier doorway in wall 408b/c	ca. 2000-1900 BCE
VII	SS1-6	Addition of walls 403 & 404/405, expanding the building to the west; eventual abandonment	ca. 1900-1600 BCE
VIII	-	Late Bronze Age pitting	ca. 1600-1300 BCE

Table 6.2: Structure SS1 architectural sequence. *Note that the proposed dates of construction phases are tentative.

Although the use-life of Structure SS1 is lengthy and at times complicated, it is possible to reconstruct a rough temporal and functional profile with the combined evidence of the building's architectural remains, occasional preserved floor surfaces, and datable finds (especially hearths and ceramics). The simple, rectangular building was first constructed on the level clay of the Settlement Slope's northwestern end early in the Middle Umm an-Nar Period. Although interior contexts from SS1 provide little indication of how the building was used, the exterior activity area to its southeast provides clear evidence that domestic activities such as cooking were taking place just beyond Structure SS1's possible eastern doorway. In SS1 phase 2, we see a maintenance event where the building's northern and eastern walls were repaired or reinforced but the structure's simple layout was maintained. Phase 3, in contrast, is marked by the division of Structure SS1's interior into three semi-integrated rooms that may indicate an increasing specialization in the function(s) assigned to each space (e.g., metallurgy; cf. Banning 2010; Kent 1990; 1991; Pfälzner 2015; Rapoport 1990; Steadman 2000). While the absolute dates of this use-phase cannot be precisely determined, the substantial quantity of ceramics recovered from phase 3 levels can be stylistically linked to the latter half of the Middle Umm an-Nar Period.

Structure SS1's fourth occupational phase begins with the blocking up of its eastern door and the repurposing of its eastern activity area for the construction of the neighboring Structure SS3. Within SS1, a collection of Late Umm an-Nar style ceramics and other artifacts provide an idea of the phase's date and character. Utilitarian ceramics and a grinding stone support a domestic use for some of the space, while the presence of both metallurgical by-products (e.g., prills and copper fragments) and completed tools suggests that SS1 continued to support a workshop space. The combination of metallurgical and domestic functions combined within a single building is not uncommon in Umm an-Nar settlements and is particularly well documented at the Late Umm an-Nar site of al-Maysar 1 (cf. Weisgerber 1980; 1981; see also **Chapter 3**).

During the Wadi Sûq Period we see the layout of Structure SS1 change once again. The phase 5 walls served to block the building's southern doorway to the street and close off of its westernmost room from the two eastern semi-integrated rooms. The purpose behind these structural changes is not yet clear. Although Wadi Sûq pottery was recovered from throughout SS1, the only clear context from this period is the large hearth and its surrounding surface in the phase 5 western room. The presence of this hearth and the high concentration of Wadi Sûq pottery and crucible fragments in the area around it make it probable that the space continued to serve a combined domestic and metallurgical function.[390] In the following phase 6, a final room was added to Structure SS1's northwestern end. No surfaces or secure contexts were recovered from this space to suggest what its purpose may have been. However, in his analysis of the building Kerr notes the relative lack of rockfall in the area of this latest addition in comparison to elsewhere in SS1. He suggests that, in spite of their sizable foundations, the superstructure to these late walls may have been more ephemeral than that of the earlier, more regularly built foundations. Rather than a fully integrated room, Kerr proposes that this final addition may represent an open-air enclosure built against the side of the previously existing building (2016:271-272). Whatever the purpose of the phase 6 addition, Structure SS1 was abandoned for the final time before the end of the Wadi Sûq Period, as evidenced by the mortuary activity in the area immediately to its northwest.

[390] It should be noted that later (Late Bronze Age and Iron Age) pitting contaminated contexts in the upper levels of SS1's northwestern half. These disturbances especially affected the Wadi Sûq contexts in this portion of the building. Additionally, much of the contents of these pits were metallurgical in nature. Any interpretation of finds from the upper levels of Structure SS1's northwestern half should be, thus, treated with due caution.

6.3.2 Structure SS2 (Trenches 0985-0988 & 1060-1063)

A series of eight trenches were excavated by Anne Mortimer in the winter of 2011-2012 that revealed a rectilinear building, SS2, which will be the focus of this subsection (see Fig. 6.14). Although Mortimer's excavations targeted the underlying Early Umm an-Nar monumental tower (Site 1156), she also defined a later phase of Umm an-Nar occupation running overtop and to the southeast of the earlier monument

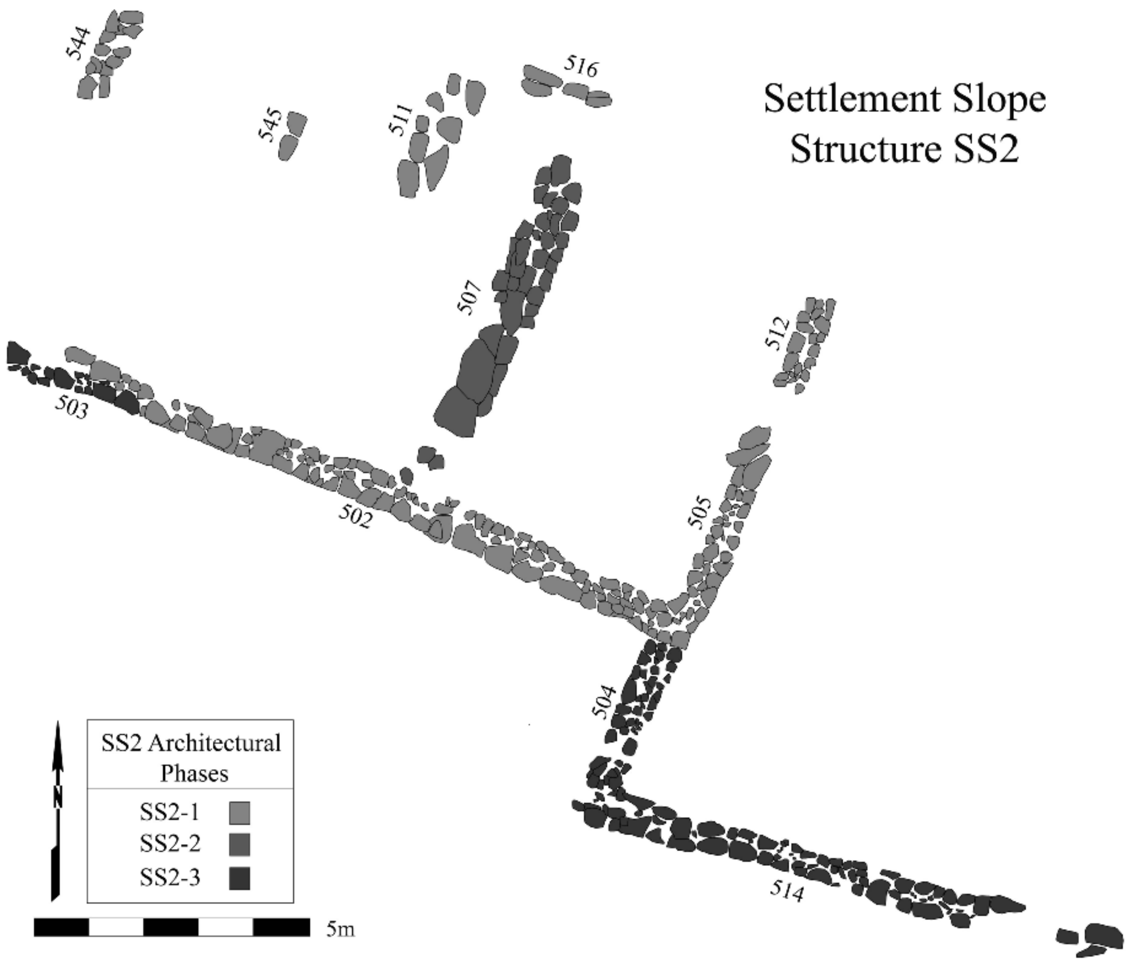

Fig. 6.14: Structure SS2 phased plan.

(Mortimer 2016:142).[391] Based on Mortimer's excavations, we know that at the close of the Settlement Slope's Early Umm an-Nar phase, the tower monument was leveled and its surrounding ditches were filled in with scree and rubble in order to form a level surface for the subsequent Middle Umm an-Nar occupation. The remains of Structure SS2, rectilinear building dating to this occupational phase, are particularly clear.

The preserved architectural remains of Structure SS2 consist of an assortment of fragmentary stone wall foundations from two or more architectural phases. As no secure occupational contexts or portable material culture were found in association with this building, the structure itself must provide the foundation for the reconstruction of its use-life and sociocultural function(s). The use-life of SS2 is framed by two large-scale leveling events that also mark the beginning and end of Umm an-Nar occupational activity in this area of the site: the flattening of the tower and ditches at the end of the Early Umm an-Nar Period and the construction of a platform across the area of the earlier tower at the beginning of the Wadi Sûq Period. Between these two events, SS2 was constructed, underwent several modifications, and was ultimately abandoned and partially deconstructed. From the surviving remains, the building in its final form most likely consisted of a series of walls running northeast-southwest (Walls 504, 505, 507, 511, 512, 544, & 545) and northwest-southeast (Walls 502, 503, 514, & possibly 516) that formed a row of four, narrow rectangular spaces[392] and possibly a large, walled

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[391] Mortimer's excavations included grid squares 0910-0912, 0985-0988, 1060-1063, and 1135-1138. Umm an-Nar occupational contexts post-dating the use of the underlying tower 1156 were most securely identified in the eight trenches discussed in this section. Further occupational contexts (a series of pits and a possible hearth feature) were also identified in grid squares 0910-0912; however, the date of these remains and their relationship to Structure SS2 are unclear.

[392] The interior rooms in Structure SS2 each measure a regular 3 m or 1.5 m in width.

courtyard space along the building's eastern face. All the remaining wall foundations are constructed in a similar style of dry stone masonry and are founded either on the surface of the leveled Early Umm an-Nar tower or on the rubble used to fill the ditches that surround the monument. Due to this lack of stratigraphic differentiation Structure SS2's use-life phases must be reconstructed through nuances in the building's architectural remains.

The earliest architectural phase of Structure SS2 (SS2-1) is represented by exterior walls 502, 505, and 512. These walls all feature the same dovetailed, dry-stone masonry and measure between 0.50 and 0.60 m in width. With the exception of the western end of 502, they all preserve one to two courses in height and are constructed directly onto the leveling material filling the Early Umm an-Nar ditches that ring the earlier tower.[393] Walls 502 and 505 form a bonded corner that is intentionally rounded on the interior. A gap of 0.77 m between the northern terminating end of wall 505 and the southern end of wall 512 may represent a doorway into the structure. Wall 512 is truncated in the north, where it may have been dismantled as part of the Wadi Sûq platform construction. Together, these three walls define the southeastern extent of the original structure.

The fragmentary northwestern half of Structure SS2 is more difficult to parse. The walls (507, 511, 516, 544, and 545) making up this half of the building partially run over the southern edge of the earlier tower and were more subject to alteration during the

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393 The western half of Wall 502 is contrasted on an irregular section of the Inner Ditch fill, which made it necessary for the wall's foundations to step down the uneven surface. At its deepest extent, the wall stands five stone courses in height. However, the preserved top of Wall 502 maintains a level surface, which presumably supported a superstructure that was demolished at the end of Structure SS2's use-life.

Wadi Sûq Period remodeling of the area.[394] As a result, only small portions of the walls survive and the remaining fragments do not physically interact with one another. This adds a layer of difficulty in determining their construction sequence. The construction style of walls 511 and 544 is comparable to that of walls 502, 505, and 512 in the southeastern portion of the building, suggesting that they may date to the original construction phase in the building's use-life. The more fragmentary wall 545 may or may not have originally featured a similar construction pattern.[395] Nevertheless, this small wall is founded on the same surface as its neighbors and may thus be tentatively considered as part of the same construction event. The purpose of the small stone alignment of wall 516 is also unclear. When first uncovered, this feature was interpreted as a small patch of pavement associated with Structure SS2. However, its location and the alignment of its stones rather suggest that the feature represents a largely deconstructed wall that may mark the building's northern extent.

The construction style of the large wall 507 differs noticeably from that of the other walls composing the core of Structure SS2 and probably represents a second construction phase (SS2-2). Rather than two dovetailed rows of roughly triangular stones forming a wall 0.60 m wide, wall 507 is composed of large stone blocks each measuring up to 1 m long and 0.8 m wide (possibly robbed from the underlying Early Umm an-Nar tower). The 507 stones are arranged in a more haphazard fashion than is found in the

[394] The preservation patterns suggest that the wall foundations resting on the earlier Umm an-Nar tower were left in place and used as part of the leveling materials for the later Wadi Sûq platform. In contrast, sections of Structure SS2's walls that extended beyond the earlier tower's surface appear to have been robbed as construction materials for the Wadi Sûq platform. Thus, the fragmentary walls 511, 544, and 545 only survive in their northern extents, where they run over the earlier tower.

[395] Only three stones of Wall 545 survive, forming two courses. The lowest course rests on the surface of the Early Umm an-Nar tower, comparable to the foundations of walls 511 and 544.

structure's other walls, forming in a larger but less well-formed wall. This variation in construction style suggests that 507 may be a later addition to Structure SS2 that sub-divided what was originally a large eastern room into two smaller rooms similar to those already making up the building's western half. The fact that the southern stones from wall 507 were not robbed in the Wadi Sûq period, when Structure SS2's other interior walls were partially deconstructed, may be due to the large size of the stones.

In a third construction event (SS2-3), walls 504 and 514 were added to the southeastern corner of Structure SS2. Both of these walls differ from those discussed so far in that they feature a small spine of rubble between the parallel rows of stones that form the inner and outer faces of the wall foundations.[396] Wall 504 neatly abuts the previously existing southeastern end of wall 502, rather than bonding with it, and extends to the southwest for a distance of 3.8 m before bonding with the northwest-southeast wall 514. The long wall 514 was constructed in a foundation cut (lot 115124) in order to bring its foundations level with the rest of Structure SS2's walls. Together, these walls enclose a large space that must have served as a courtyard for Structure SS2.[397] After a length of approximately 9 m, wall 514 is robbed out and no convincing evidence of the courtyard's eastern or northern extents has yet been identified.[398]

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[396] This construction style parallels that found in SS1-4, wall 413b, and in Structures SS3 and SS10.

[397] This enclosed space measures a least 9x7 m in area – too wide to have been roofed with the locally available building material. Such a courtyard setup is comparable to Middle Umm an-Nar structures found elsewhere on the Settlement Slope (especially the outdoor activity area east of Structure SS1) and in other areas of the Bat landscape (see **Section 5.4**).

[398] Mortimer identified a small (1 m long, .5 m wide), northwest-southeast stone alignment (wall 517) abutting the far northeastern corner of wall 512. Only a small portion of this feature could be exposed and it is unclear if the stone alignment represents a true wall or a deceptive alignment of stone tumble. However, it is possible that the putative wall 517 could indicate the northern end of Structure SS2's eastern courtyard.

The final example of structural alteration in Structure SS2 is the unusual wall 503.[399] This short feature runs along the southern face of wall 502 for a distance of approximately 2 m before the western extent of 502 comes to an irregular end (possibly robbed out). Wall 503 continues to the northwest, at a slightly more southern angle than taken by wall 502, for a further 2.5 m before it reaches the extent of the excavated area. The drystone architectural style of 503 differs from that of other walls in Structure SS2 in that its stones are not dovetailed and are less precisely assembled. Wall 503 thus appears to have been added to SS2 in a later phase of the building's use-life to buttress the southern face of wall 502 (presumably at a point where it was slumping down the hill slope) and possibly to extend the structure to the southwest.

The architectural sequence and use-life of Structure SS2 are particularly challenging to reconstruct for a number of reasons, most notably: the scarcity of physical interaction between its wall remains; the presence of only minimal differences in stratigraphy or elevation differentiating the walls; and the absence of datable material culture connected to any phase. No floors or use surfaces were identified in connection with SS2 and the little portable material culture that was recovered did not come from primary contexts.[400] It is probable that any interior contexts remaining within the building at the end of its use-life were destroyed by the construction of the Wadi Sûq

[399] This maintenance event is here considered part of SS2-3. However, this interpretation is extremely tentative as no stratigraphy connects the two construction events.

[400] Portable material culture from the area around Structure SS2 (primarily to the south of the building, where it may have washed downhill) was restricted to a small and unremarkable assemblage of Middle and Late Umm an-Nar ceramics and a fragmentary clay, zoomorphic figurine (possibly representing an oryx or an ox) that may suggest economic interaction between the residents of the Settlement Slope and the Indus (Mortimer 2016:151). None of these finds were recovered from primary contexts and are, thus, of limited use in interpreting Structure SS2.

platform. The sequence I suggest in Table 6.3 below is, therefore, based on details in the construction styles of the building's assorted walls. All bonded walls and wall fragments with comparable construction styles are assumed to date to the same architectural phase. The approximate dates suggested for each phase are based on comparisons with walls elsewhere on the Settlement Slope where chronological dates are supposed with more secure stratigraphy and the results of radiocarbon analysis (see **Sections 6.3.1** and **6.3.3**).

Structure SS2 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IIIB	-	Middle Umm an-Nar leveling of tower and in-filling of ditches	ca. 2500 BCE
IVa-b	SS2-1	Initial construction: walls 502, 505, 511, 512, 516(?), 544, & 545(?) – dovetailed, drystone masonry, 0.5-0.6 m wide	ca. 2500-2400 BCE (?)*
IVc	SS2-2	Addition of wall 507 – coarse construction of dividing the large eastern room at the front of the building into two smaller rooms	ca. 2400-2200 BCE (?)*
V	SS2-3	Addition of walls 504 & 514; possibly addition of wall 503 to reinforce 502 and extend building further to the west.	ca. 2200-2000 BCE (?)*
VI	SS2-4	Building leveled and Early Wadi Sûq platform constructed over its northern half	ca. 2000-1900 BCE

Table 6.3: Structure SS2 architectural sequence. *Note that the proposed dates of construction phases are extremely tentative.

Although the archaeological data for Structure SS2 are limited, it is possible to piece together a rough use-life for the building based solely on its architectural remains. In its initial phase (SS2-1) the rectangular building was probably entered from the east and consisted of one large room that likely served as the primary use space and two smaller rear rooms. The building's second use phase (SS2-2) is indicated by the addition of the dividing wall 507.[401] This division of the large eastern room transformed Structure SS2 into a chain of four narrow rooms, each measuring either 1.5 or 3 m in width. It is difficult to give a specific function to these four rooms due to a lack of interior contexts. In Structure SS2's final active use phase (SS2-3) an enclosed courtyard space is added to the eastern front of the building. This courtyard provides an extra degree of privacy to SS2's outdoor space and suggests that, despite its internal division in phase SS2, the eastern doorway remained the building's primary entry point. Based on the available data, it is unclear when Structure SS2 fell out of use (i.e., if the building was occupied until the Wadi Sûq leveling or if it was abandoned years prior). Nevertheless, the final event that removed SS2 from the activity on the Settlement Slope was the construction of the Wadi Sûq platform that deconstructed some sections of the building and sealed others within the body the platform.

6.3.3 Structure SS3 (Trenches 0980-0981 & 1055-1057)

Returning to the flat northwestern end of the Settlement Slope hillside, let us now consider the building added to the east of Structure SS1 – Structure SS3. The western edge of this building was first encountered during BAP's 2013 excavations of the larger SS1. In 2014, BAP expanded excavations to the east in order to explore the preserved extent of this new structure. Although the uncovered remains proved to be more fragmentary than those of the neighboring Structure SS1, the use history of Structure SS3 provides valuable insight into the evolution of the northwestern area as settlement space.

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[401] It is unclear from the remains of SS2 alone if wall 507 or the courtyard walls 504 and 514 were added first.

As noted above (see **Section 6.3.1**), the area just east of Structure SS1 was initially used as an exterior activity area (SS1-1 through SS1-3). The clay surface associated with this area is level with the earliest walls of Structure SS1 and is securely dated to the Middle Umm an-Nar by radiocarbon analysis.[402] Excavation exposure to this early level was limited by the later construction of Structure SS3 above it. Nevertheless, the locations where the surface was reached (i.e., south of wall 412 and in the eastern half of the Structure SS3 room) were found to contain a substantial assemblage of Umm an-Nar pottery, oven fragments, copper scrap, and a piece of a crucible along with evidence of burning. The nature of this assemblage in combination with the location of the possible doorway in the eastern wall of Structure SS1 support the interpretation of this space as a multifunctional activity area (e.g. food and craft production) connected with the neighboring SS1 building. A 5-10 cm layer of accumulated ashy fill resting atop the surface attests to a prolonged period of use.

The transition of this space from open activity area to enclosed building is marked by a 10 cm layer of sterile clay, which appears to have been purposefully laid down in order to level the irregular activity surface. The foundations of walls 412,[403] 413b, 420a, 420b, 421,[404] and 422[405] are laid directly into the clay layer (see Fig. 6.15). Although as

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402 The C14 sample was recovered from a fire pit associated with the surface and provides a date of 2470-2315 cal. BC (2-σ). See also **Section 6.3.1** and Appendix A.

403 The eastern half of wall 412 did not survive, which gives it a wider and more irregular appearance than the western half.

404 The southeastern half of wall 421 does not preserve, which gives it a narrow and irregular appearance.

405 The contexts surrounding wall 422 are damaged by erosion, as the gradient of the Settlement Slope hillside increases to the east. As wall 421 and 422 share a bonded corner, they can both be considered part of the same architectural phase.

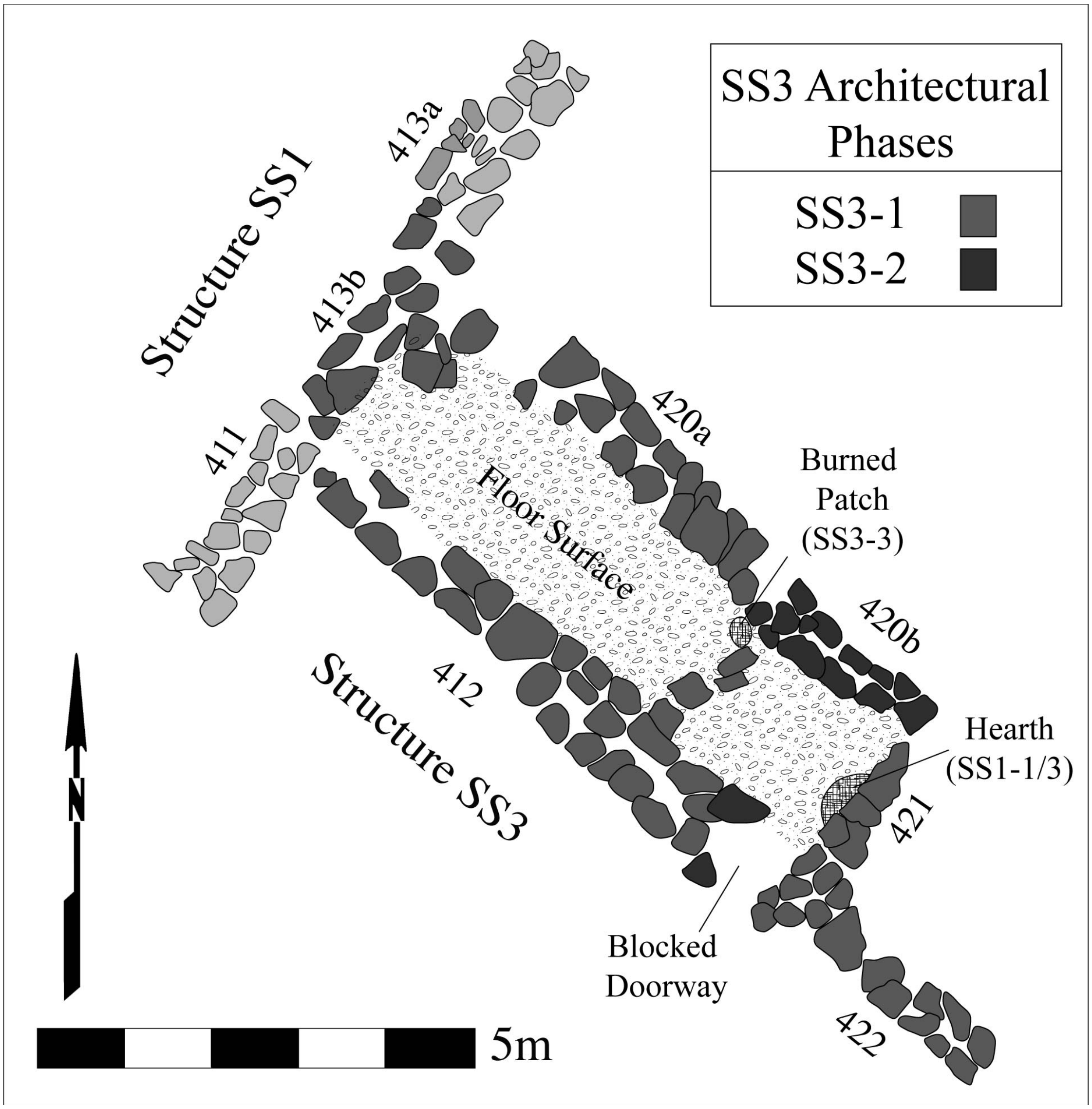

Fig. 6.15: Structure SS3 phased plan.

preserved none of these walls directly interact with one another,[406] together they define a room comparable in size (7.5x2 m) to those of Structures SS1 and SS2. The interior of Structure SS3's preserved narrow room features a floor surface of packed clay and sub-

[406] The northwestern corner between walls 413b and 420 appears to have collapsed into the room; the northeastern corner between 420a and 421 was altered in a later (SS3 phase 2) reconstruction event; the western end of wall 412 abuts the face of SS1's wall 411 rather than bonds with 413b; and the space between the eastern end of wall 412 and the southern end of wall 421 may form a doorway into the building.

angular cobbles. Notably, this cobbled surface is the only interior floor[407] made of a material other than clay and gravel so far identified at the Settlement Slope. The more formal floor composition may explain why the room's interior contexts appear to have been cleaned out down to the floor level for the duration of its use-life. The resulting lack of superimposed floor layers and accumulated material culture within SS3 makes the fine parsing of its architectural phases and their relationships (physical or stylistic) with those of other buildings on the Settlement Slope essential for understanding its use-life.

The first architectural phase in Structure SS3 is defined by walls 412, 413b, 420a, 421 and 422 (SS3-1).[408] The construction style of this collection of walls is defined above in Structure SS1's phase 4 – two parallel rows of large, unworked stone slabs set horizontally into a mud mortar with a thin spine of mud and rubble filling the space between them (see Fig. 6.16).[409] Wall 413b, as already discussed (see **Section 6.3.1**), fills the space between walls 411 and 413a in Structure SS1, where a doorway connecting the earlier phases of the building to the external activity area may have been located. The floor level and contexts associated with this architectural phase in Structure SS1 give us a

[407] The exterior street located to the south of Structures SS1 and SS3 also features a cobbled surface.

[408] It is probable that Structure SS3 was far larger in its complete form than its preserved remains suggest. Large quantities of rockfall (likely the product of erosion and wall collapse) were uncovered in the area to the northeast; however, no coherent walls could be identified. The fragmentary wall 422, which bonds with and extends from wall 421 at the far end of the SS3 room, suggests that the building also continued to the southeast.

[409] This construction style is also found in Structure SS2's phase 3 wall 514, which is tentatively dated to the Late Umm an-Nar Period. Similar construction styles are also known from the Late Umm an-Nar sites of Maysar-1 and Umm an-Nar Island (cf. Frifelt 1995; Weisgerber 1980; 1981).

Fig. 6.16: Structure SS3 wall 412 from north showing the construction style of two rows of limestone blocks and a core of mud and stone rubble. Filled doorway also visible in wall's southeastern end.

relative Late Umm an-Nar date for the phase as a whole (i.e., SS1-4 and SS3-1).[410] Despite this dual structural relationship, it is clear that wall 413b was constructed as part of Structure SS3, rather than SS1, because it shares the same alignment, construction style, and foundation level as SS3 walls 412, 420a, and 421. A single row of limestone blocks set into the cobbled floor surface bisects the room into two irregularly-sized spaces (see Fig. 6.17). The purpose of this stone feature is unclear but may have served to visually partition the narrow room into two functional spaces. The entrance to Structure SS3 in this first use phase is suggested by a roughly 1 m wide gap between the southeastern terminating end of wall 412 and the southwestern terminating end of wall

[410] Although no Late Umm an-Nar contexts were recovered from within the Structure SS3 room, Late Umm an-Nar style sherds were found in mixed contexts to its north and south. These attest to an occupation of some form in the general vicinity during the Late Umm an-Nar Period. A C14 date from a hearth running beneath wall 421 provides a *terminus post quem* of 2470-2315 cal. BC (2-σ) for the construction of Structure SS3.

Fig. 6.17: Structure SS3 cobbled floor and row of limestone blocks bisecting the room (foreground) from west. Walls 412, 420b, and 421 visible. Filled doorway also visible in wall 412's southeastern end.

421. Similar to SS1's phase 1-4 southern entrance, this door would have opened onto the street that runs along the lower edge of the settlement.

Structure SS3's second architectural phase (SS3-2) is most visible in two (re)construction events in the well-preserved room's eastern half. First, the southeastern end of wall 420a is replaced with the slighter wall 420b. This new wall abuts 420a to the northwest and rests at the same foundation layer as both 420a and 422. The addition of this wall may have enclosed the southernmost room of a semi-integrated floor plan similar to that of Structure SS1. Second, the doorway between wall 412's southeastern end and wall 422's northwestern face is filled in with rubble and a single large stone. The date of these construction events is particularly uncertain because of the poor state of wall 420b's preservation and the lack of associated finds.[411] However, I suggest that a date in the Early Wadi Sûq Period is probable. The blocking of Structure SS3's southern entryway and the addition of wall 420b mimic similar (although more meticulously executed) events in Structure SS1's well-dated Early Wadi Sûq Period phase 5. These parallel construction events may reflect a general realignment of the buildings in this area of the Settlement Slope during the period. Wadi Sûq style ceramics were recovered from mixed contexts to the north and south of the Structure SS3 room, although none distinctive enough to be categorized to the sub-period. Nevertheless, given the Early Wadi Sûq occupation in the neighboring building (SS1), a contemporary presence in Structure SS3 is highly likely.

The final phase visible in Structure SS3 (SS3-3) does not have a corresponding construction event. Instead, the ashy fill resting immediately on the room's floor surface represents the building's last use. While little material culture was found in this thin (ca. 5 cm) layer of sediment (limited to a handful of non-diagnostic sherds), a concentrated

[411] Wall 420b is not as well preserved as its surrounding neighbors and slumps downhill to the southwest. This damage makes is construction style difficult to analyze and obscures its structural relationship with wall 421 to the southeast. However, it is clear that wall 420b is constructed of smaller stones than the earlier phase 1 walls.

area of ash and charcoal resting on the floor surface and against the faces of wall 420b and the row of limestones bisecting the room indicate at least one burning event.[412] A C14 sample taken from this charred area provides a Middle-Late Wadi Sûq date of 1795-1635 cal. BC (2-σ) for the use phase. The building was then abandoned, with no evidence of Late Bronze Age or Iron Age occupation to follow. The surviving room was gradually covered with a layer of aeolian silt and rockfall from the surrounding walls.[413]

Structure SS3 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IVa-b	(SS1-1 & 2)	Exterior activity area associated with Structure SS1	ca. 2500-2400 BCE
IVc	(SS1-3)	Continuation of activity area?	ca. 2400-2200 BCE
V	SS3-1	Leveling of activity area with clay; construction of walls 412, 413b, 420a, 421, & 422	ca. 2200-2000 BCE (?)*
VI	SS3-2	(Re)Construction of wall 420b and filling of southern doorway in wall 412	ca. 2000-1900 BCE (?)*
VII	SS3-3	Continued use of room; Abandonment	ca. 1900-1600 BCE

Table 6.4: Structure SS3 architectural sequence. *Note that the proposed dates of construction phases are tentative.

In reconstructing Structure SS3's use-life we encounter interpretive challenges in both its fragmentary layout and conflated occupational contexts. Yet, similarities between this use-life and others already established for buildings on the Settlement Slope

412 There is no evidence of burning on the Structure SS3 walls, which suggests that this was a controlled burning event or events rather than a conflagration. The quantity of ash is more likely to be the result of burning palm fronds or grasses than of metallurgical activity (Thornton *personal communication*).

413 This rockfall was more substantial in the areas to the north and east of the Structure SS3 room, where the Settlement Slope hillside becomes steeper. This pattern suggests that the rest of the building's original floor plan suffered far greater erosion damage than is seen in the surviving room.

(e.g. SS1 and SS2) reveal patterns in the site's occupational history. We can interpret the construction of Structure SS3 in the space once reserved for Middle Umm an-Nar exterior food and craft production as reflecting the Settlement Slope's increasing structural and population density during the Late Umm an-Nar Period. While the building's overall plan is obscured by erosion damage, the construction style used in its surviving phase 1 walls and the dimensions of its surviving room match those found in contemporary phases of Structures SS1 and SS2. These repeated characteristics help to establish a typical Umm an-Nar room size and Late Umm an-Nar wall type. The closing of Structure SS3's southern doorway in its second use phase, along with a comparable event in SS1, similarly suggests an Early Wadi Sûq trend of structural reorientation away from the street. The reasons behind this shift in orientation are not yet clear, but may suggest an increasing privacy and restricted access to building interiors. Finally, the apparent cleaning out of the Structure SS3 room in its Middle-Late Wadi Sûq phase 3 may also help to explain the limited evidence of later Wadi Sûq occupation found in other buildings on the Settlement Slope.

6.3.4 Structure SS4+ (Trenches 0830-0831, 0905-0906, & 0980-0981)

The area to the northeast of Structure SS1 and north of SS3 features a multiphase collection of fragmentary walls that do not form a single, coherent building (see Fig. 6.18). The contextual clarity of this area is heavily impacted by erosion, which has resulted in substantial wall collapse, and later (Late Bronze Age) pitting. Thus, in order to parse the structural and occupational sequence we must rely on variations in construction styles and, in the few instances where they are available, associated material

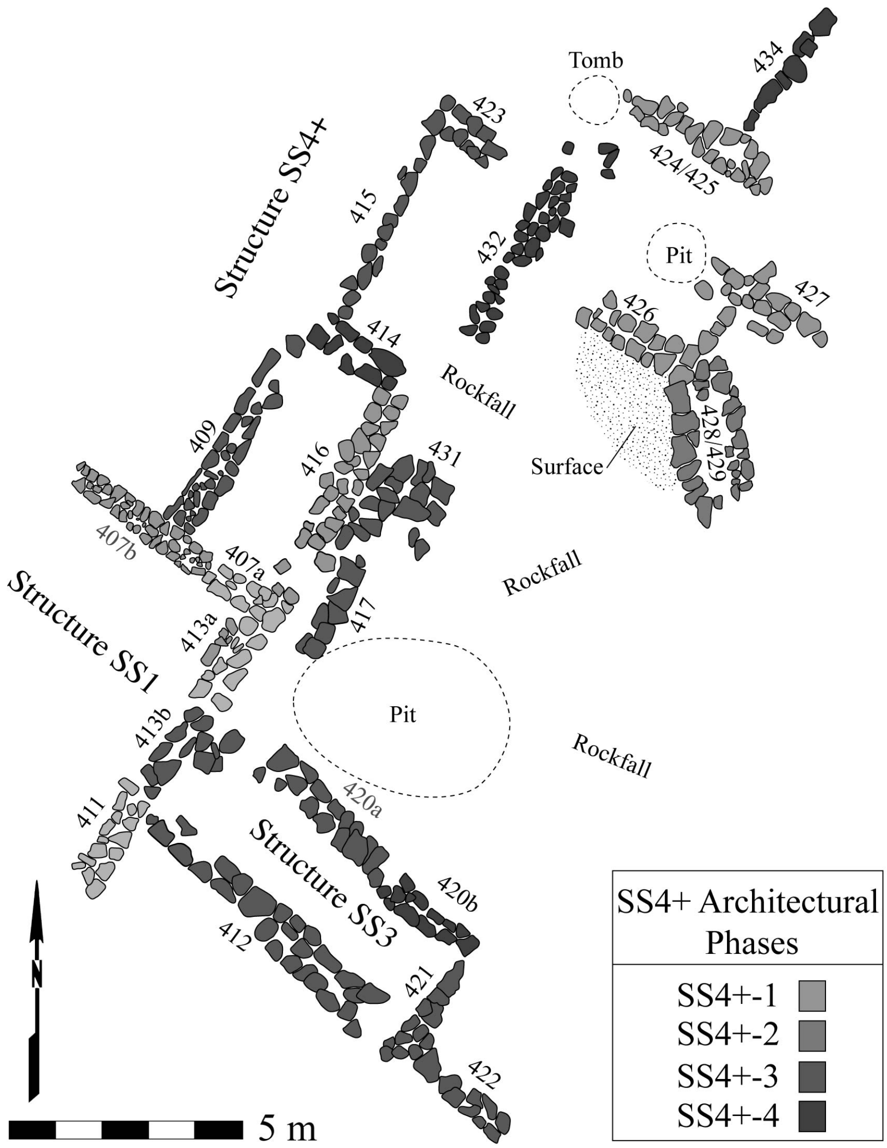

Fig. 6.18: Structure SS4+ phased plan.

culture. Although in antiquity this space was likely the stage for a number of buildings at various times, for the purposes of this dissertation I present the excavation results for the area as a whole as Structure SS4+. While less streamlined than other structures discussed in this section, these results further develop the use history of the Settlement Slope's northwestern end.

The poor preservation found in this area of the Settlement Slope can be accounted for by considering its position on the hillside. This area is located at a point where the hill begins to slope upward toward the Early Umm an-Nar tower to the east and downward into a small drainage channel to the north. Although the gradient of the slope remains moderate, the area is subject to erosion from two directions. All excavated contexts in this area of the Settlement Slope were sealed beneath a layer of wind-blown silt and rockfall. The size and quantity of the rocks in this layer indicate that they likely represent the collapsed foundations or superstructure of architecture from either the immediate surroundings or areas uphill to the east.

As of yet, there is no in situ evidence of Early Umm an-Nar activity known from this area of the Settlement Slope. Yet, given the Early Umm an-Nar metallurgical activity identified near the tower just to the east (cf. Mortimer 2016:132-139) and below Structure SS10 to the west (see **Section 6.3.5**), it is not unreasonable to expect there to have been a contemporary occupation of some kind. Any surviving Early Umm an-Nar contexts most likely exist at lower elevations than have so far been reached in BAP's excavations.

The earliest architectural phase (SS4+-1) known in this area is a collection of wall fragments (walls 416, 424/425, 426, 427, and 433) that can be stylistically dated to the Middle Umm an-Nar Period. Of these, the construction style of parallel walls 426 and 427 is especially clear and similar to walls elsewhere on the Settlement Slope attributed to the Middle Umm an-Nar, with two parallel rows of dovetailed stones.[414] These two

[414] See SS1 wall 413b (**Section 6.3.1**), SS2 wall 514 (**Section 6.3.2**), SS3 walls 412, 420a, 412, and 422 (**Section 6.3.3**), and SS10 walls 401, 402a, 402b, and 410 (**Section 6.3.5**). It is unfortunately not possible to compare the foundation elevations of the Late Umm an-Nar walls in Structure SS4+ with these clearer examples due to the increasing slope of the hillside and the lack of clear stratigraphy between them.

walls are separated by a space of 1.5 m and delineate the northern and southern edges of a narrow room.[415] A possible floor of clay and gravel was found along the northern face of wall 426 and is level with its foundations, however no artifacts were recovered in association with this surface. Another 1.7 m north of and running parallel to wall 427 is the poorly preserved wall 424/425.[416] Although the wall's construction style is unclear, it can be tentatively considered contemporary with walls 426 and 227 due to their comparable alignment and because their foundations all rest at the same level. A single line of stones (wall 433) crosses the narrow space between walls 426 and 427 at a right angle and appears to continue to the north on the far side of wall 427. This stone feature may represent a threshold that marks the entrance into the building, as suggested by the excavator,[417] or more likely a poorly preserved wall that formed a corner with wall 426 and abutted the southern face of wall 427. The layout of this building is obscured by a number of later activities: the northwestern ends of both walls 426 and 427 are disturbed by later pitting and the northwestern end of wall 424/425 is cut by an unexcavated Wadi Sûq tomb. Nevertheless, as the spaces between the three parallel walls (424/425, 426, & 427) are consistent with the room width found in the Settlement Slope's other Umm an-

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[415] The southern face of wall 427 is slumped slightly downhill to the southwest, obscuring some of this corridor space.

[416] This wall was recorded as two features due to the variation in its width. The uneven preservation of this wall makes it unclear if it was a single wall that has slumped more dramatically in some areas than in others or if it was two abutting walls. The wall's northwestern end (424) is cut by a later Wadi Sûq tomb.

[417] However, this relatively thin line of stone is at odds with the tradition of Umm an-Nar doorways found at Bat and other excavated settlement sites. Here, doorways are marked by either a gap in the stone wall foundations or by a single large stone (c.f SS1 wall 408b/c in **Section 6.3.1**, SS3 wall 413 in **Section 6.3.3**; see also Azzarà 2009; Frifelt 1995:24; Weisgerber 1981:191-197).

Nar rectilinear structures (e.g., SS1, SS2, & SS3), I suggest that this collection of wall fragments represents yet another example of this building type.

A possible second Middle Umm an-Nar building is suggested by the northeast-southwest wall 416. This wall is situated at the northeastern corner of Structure SS1 and appears to abut the earlier building's bonded corner, formed by walls 407a and 413a.[418] Wall 416 is constructed in the typical Middle Umm an-Nar style of two rows of dovetailed stones without apparent mortar and is preserved two courses in height.[419] Its foundations rest 20 cm above those of SS1's walls 407a and 413a, making them roughly level with the SS1 phase 3 internal dividing walls 418 and 419a. However, beyond its vague structural relationship with Structure SS1, little is known of this Middle Umm an-Nar building.[420] In SS4+'s later use phases, the space around wall 416 is developed into at least two buildings, one of which incorporates the earlier wall. This later construction may explain why only one wall of the Middle Umm an-Nar building has survived.

The second architectural phase in the Structure SS4+ area (SS4+-2) is found in the addition of an unusually wide wall feature (428/429)[421] that abuts the southeastern corner of walls 426 and 433 (see Fig. 6.19). The construction style of this wall mimics

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[418] Wall 416's southern end is in fragmentary condition, thus its relationship with SS1 wall 407a is somewhat uncertain.

[419] Portions of wall 416's northwestern face have slumped out of place, obscuring the overhead plan.

[420] Given the Settlement Slope's emerging pattern of partially subdivided, rectilinear floor plans, this wall may represent the last remnants of another such building.

[421] The parallel rows of outer facing stones were initially recorded as two independent walls – wall 428 and wall 429.

that of the Settlement Slope's Late Umm an-Nar walls[422] in that it is composed of two parallel rows of horizontal stones, which form the wall's outer facings, and core of stone rubble. In this iteration, however, the wall's rubble core is exaggerated to a width of 50-65 cm. Taken together, the stone facings and core form a 1.7 m wide foundation that is preserved two courses in height. There is little to

Fig. 6.19: Wall 428/429 from south.

indicate what sort of superstructure this substantial foundation might have supported. Yet, we can tentatively hypothesize a function for wall 428/429 based on comparison with a parallel feature found at Bat's nearby settlement of al-Khafaji. There, the even larger Connecting Wall has the same construction style and was added to a preexisting building complex to enclose a domestic courtyard next to the settlement's tower (see **Section 6.4.4** below). Wall 428/429 may have been similarly added to the phase 1

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[422] See discussion of Structure SS1 wall 413b (**Section 6.3.1**), Structure SS2 wall 514 (**Section 6.3.2**), Structure SS3 walls 412 and 420a (**Section 6.3.3**), and Structure SS10 walls 401 and 402a/b (**Section 6.3.5**).

Middle Umm an-Nar building in order to define or provide privacy for an outdoor use space.

The date of Structure SS4+'s second phase is uncertain but can be approximated through architectural and ceramic stylistic comparison. The unusual construction style and alignment of wall 428/429 clearly differentiate it from the neighboring phase 1 building. Yet, the phase 1 and phase 2 foundations all rest at the same elevation, which indicates that only a short period of time is likely to have passed between construction events.[423] Although the structural similarities between wall 428/429 and the Settlement Slope's Late Umm an-Nar construction style may suggest a date in this later period, the more direct parallel with the Connection Wall at al-Khafaji (see **Section 6.4.4**) rather gives us a date in the latter half of the Middle Umm an-Nar Period. A Middle Umm an-Nar date is reinforced by a collection of painted ceramic sherds found resting on a small, exterior clay and gravel surface that abuts the southwestern faces of walls 426 and 428/429. Although not a precise match, two of these elaborately painted black-on-red sherds can be stylistically compared to the spiral and ladder motif that is characteristic of the Middle Umm an-Nar Period (see Fig. 6.20).[424] It thus appears that during the Middle Umm an-Nar the northern half of the Structure SS4+ area was home to a rectilinear

[423] It is also possible that the later SS4+-2 walls were constructed n a foundation trench that brought them level with the SS4+-1 walls. While no trace of a foundation trench was identified during excavation, the disturbed nature of this area of the Settlement Slope may have obscured such features.

[424] See **Section 6.3.1** above for an example from Structure SS1 phase 2; see also Cleuziou 1989a:77, Pl. 24 & 27; Frifelt 1976:66, Fig. 6 & 9; Méry 2000:129, Fig. 76, no. 8 & 9; Potts 1990b:46, Fig. 49, 52, Fig. 56; Thornton & Ghazal 2016:198, Fig. 9.6, no. j.

building with at least two narrow rooms and, by structural phase 2, a walled courtyard.[425]

Fig. 6.20: Middle Umm an-Nar ceramics found on SS4+ phase 2 surface.

Structure SS4+'s third phase (SS4+-3) is represented by the addition of wall 409 against the northern face of Structure SS1 and of another now fragmentary building just to the east (walls 417 and 431). The partially exposed wall 415 and fragmentary wall 423 are also tentatively dated to phase 3. This collection of walls, while preserved with varying degrees of clarity, are broadly constructed in the style typical of Bat's Early Wadi Sûq Period (see SS1's walls 408a and 419b in **Section 6.3.1**). With two exceptions,[426] they consist of two parallel rows of large, vertical stone slabs with a core of smaller stones and mud. Looking first at wall 409, this wall neatly abuts the northern face of Structure SS1's wall 407b and runs parallel to the SS4+ phase 1 wall 416. Together these walls form a 1.7 m wide room. An inconsistent clay and gravel surface was identified level with the wall 409 foundations, which rest roughly 20 cm above those of walls 407b and 416. A possible domestic function for this interior space is suggested by the presence of a ground stone mortar on the floor level.

425 No clear Late Umm an-Nar contexts have been identified in the Structure SS4+ area. Nevertheless, Late Umm an-Nar style ceramics have been recovered from the rockfall. This indicates that the area was in use during this period, even if no datable contexts have been preserved.

426 See discussion of walls 417 and 431 below.

In contrast, the exterior space to the west of wall 409 was filled with a fine, silty sand distinct from any other matrix known at the Settlement Slope. A geomorphological team led by Eric Fouache of the University Paris Sorbonne Abu Dhabi confirmed that this sandy material was not naturally occurring on the Settlement Slope hillside. This sediment thus must have been purposefully transported to the location, possibly in order to serve as the bed of a household a garden.[427] A collection of crucible fragments discovered resting at a level comparable to the wall 409 foundations, just north of the 'garden' area, suggest an alternative metallurgical function for the sandy contexts. The northern ends of both walls 409 and 416 are cut by the later wall 414 (see below). Based on the surviving structural remains, it is unclear if this new phase 3 room communicated with the contemporary phase of Structure SS1 (phase 5) or if it functioned as an independent building.

A second SS4+ phase 3 building was also constructed immediately to the east of wall 416. This structure has been almost wholly destroyed by later (Late Bronze Age) pitting activity and wall collapse. Only its northwestern corner, formed by walls 417 and 431, survive with a single course of stone. The foundations of these walls rest at a similar level to those of wall 409 to the west. Notably, both walls 417 and 431 deviate from the standard Early Wadi Sûq construction style slightly in that only their exterior face is formed with an upright (vertical) stone slab. The walls' body and inner face is

[427] The 'garden' space is defined by walls 407b of SS1, 409 of SS4+, and 430 of SS10. While each of these walls dates to a different period in the Settlement Slope's occupational history, I suggest that the garden was installed along with or shortly after the Early Wadi Sûq wall 409. If wall 430 is accepted as a reconstruction of Structure SS10's original (Late Umm an-Nar) eastern wall, then wall 409 would be the latest of the three walls that define the garden space. The fine silty sand would then have been deposited in the structurally defined space to the north of Structure SS1, west of Structure SS4+, and east of Structure SS10.

instead formed by a row of horizontal stones comparable in size to stones used in Late Umm an-Nar construction. These two fragmentary walls may, then, represent a structural transition from the Late Umm an-Nar to Early Wadi Sûq styles. However, no contexts survive that could verify this possibility. The southwestern end of wall 417 and the space to the southeast are cut by a large Late Bronze Age pit, while the eastern end of wall 431 is obscured by rockfall.

The third construction event tentatively dated to SS4+ phase 3 is the addition of walls 415 and 423 to the northeast of the walls 409 and 416 room. Information regarding these features is limited due to the extent of excavations and intrusive later activities (i.e., Wadi Sûq pitting and the addition of wall 432) to the east. The western face of wall 415 is located beyond the limits of the excavated area, which restricts our ability to accurately assess its construction style. However, its inner face is composed of irregularly shaped stones laid vertically into a mud mortar. This structural style is also seen in the inner face of wall 409 to the southwest, which rests at a similar foundation level. Although the irregular inner faces of the two walls are not precisely aligned, it is possible that they were constructed as a single Early Wadi Sûq wall and were both cut by the later wall 414. At the building's northwestern corner, wall 415 is bonded to the short, northwest-southeast wall 423. After a length of only 2 m, the southeastern end of wall 423 is also cut by later activity, possibly associated with the Wadi Sûq tomb that disrupts the northwestern end of SS4+ phase 1 wall 424/425. As no floor surface or datable material culture were discovered in connection with walls 415 and 423, their construction phase and association with wall 409 to the southwest remain uncertain.

Structure SS4+'s fourth phase (SS4+-4)) includes three unrelated walls (414, 432 and 434), none of which have clear use contexts. I group them together in phase 4 because they all post-date SS4+ phases 1-3 and were added to the complex while the buildings were still in use (i.e., before the phase 5 Wadi Sûq funerary activity). The clearest of these is the short, northwest-southeast wall 414, which cuts through walls 409 and 415 at its northwestern end[428] and clearly rests on the top of wall 416's second course in its southeastern end. The wall is constructed of large, unworked stones without mortar and can be compared to the SS1 phase 6 (Middle-Late Wadi Sûq) walls 403 and 404/405. The addition of wall 414 created an enclosed 5x2 m room abutting the northern end of Structure SS1 (defined by walls 407a, 407b, 409, 414, and 416) and possibly a similar 4.5x2 m room to the northwest of the first (defined by walls 414, 415, and 423). No floor surface was identified in association with wall 414 in either room and no material culture can be linked to this construction event. Nevertheless, we can tentatively date wall 414 to the Middle-Late Wadi Sûq Period based on comparison with Structure SS1's phase 6 walls.

We find the second of the SS4+ phase 4 walls, wall 432, running roughly parallel to and 2.5 m southeast of wall 415. This wall is notably constructed in a foundation trench filled with stone rubble and is composed of irregularly shaped stone cobbles without evidence of mortar. Such a construction style is unknown elsewhere on the Settlement Slope or in Bat's other known settlements. The poorly preserved wall 432 appears to form a southeastern end to the earlier room delineated by phase 3 walls 415

[428] Wall 414's foundations rest roughly 20 cm above those of walls 409 and 415.

and 423. However, it does not align with wall 416 to the south and thus breaks with the previous building layout. A possible clay floor was identified level with the top of wall 432's foundation trench but no datable material culture was found in associate with this surface. Wall 432's northeastern end was destroyed by the same pitting and funerary activity that damaged walls 423 and 424/425, while its southwestern end is lost in a dense accumulation of rockfall that could not be moved.

The final SS4+ phase 4 wall, wall 434, is an ephemeral northeast-southwest stone alignment that abuts the northern face of wall 424/425. It is composed of only a single line of stones, one course in height, and its foundations rest well above those of wall 424/425.[429] As this wall does not directly interact with the phase 5 Wadi Sûq funerary activity, it is possible that it may date to an even later period. However, as there is little to suggest that any structural activity took place on the Settlement Slope after the Middle-Late Wadi Sûq Period, a phase 4 date is probable for wall 434.

Following the poorly preserved phase 4, the Structure SS4+ area appears to fall out of use as an occupational location. Instead, SS4+ phase 5 (SS4+-5) is characterized by the installation of at least one Wadi Sûq tomb, which cuts into the northwestern end of wall 424/425 (see Fig. 6.21). A similar tomb may have also been added in the area just west of wall 427, but was damaged by a Late Bronze Age phase of pitting activity (SS4+ phase 6).[430] The clearest of these Late Bronze Age trash pits, located to southeast of wall 417, contained soft silt, pottery from a number of periods (Middle Umm an-Nar through

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[429] The exact difference in elevation between wall 424/425 and 434 is unknown because the northern side of wall 424/425 was not excavated to the level of its foundations. A difference of 20+ cm can be assumed.

[430] Neither potential Wadi Sûq tomb was excavated.

Fig. 6.21: Wadi Sûq tomb cutting wall 424/425.

the Late Bronze Age), and mudbrick fragments. The presence of mudbrick pieces in these late pits suggests that at least some of the SS4+ walls originally supported a mudbrick superstructure. The SS4+ area was finally abandoned and covered by a layer of rockfall and aeolian silt.

Structure SS4+ Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IIIa	-	Nearby Early Umm an-Nar metallurgical activity	ca. 2800-2650 BCE (?)*
IVa-b	SS4-1	Construction of building associated with walls 424/425, 426, 427, & 433; Addition of wall 416 to northwestern end of Structure SS1	ca. 2500-2200 BCE (?)*
IVb-c	SS4-2	Addition of wall 428/429 to the southeastern corner walls 426 & 433	ca. 2500-2200 BCE (?)*

Site Phase	Building Phase	Description	Approximate Date
V	-	Continued Late Umm an-Nar occupation?	ca. 2200-2000 BCE (?)*
VI	SS4-3	Addition of wall 409 to create a room with phase 1 wall 416; Construction of building associated with walls 417 & 431; Room added to the northeast with walls 415 and 423	ca. 2000-1900 BCE (?)*
VII	SS4-4	Addition of wall 414; (Re)Construction of wall 432 in foundation trench, forming an eastern wall to the room formed by walls 415 & 423; Addition of wall 434 (?)	ca. 1900-1600 BCE
VII	SS4-5	Wadi Sûq funerary activity	ca. 1900-1600 BCE
VIII	-	Late Bronze Age pitting	ca. 1600-1300 BCE

Table 6.5: Structure SS4+ architectural sequence. *Note that the proposed dates of construction phases are tentative.

While the architectural sequence of the Structure SS4+ area may not be as clear as that of other structures discussed in this section, the surviving materials help to refine our understanding of the Settlement Slope's occupational history. With SS4 phase 1, we find the fragmentary remains of yet another rectilinear Middle Umm an-Nar building with room sizes comparable to those seen in Structures SS1 and SS2. The presence of three such buildings on the Settlement Slope's northwestern end strongly suggests that this structural type was well established at the site by the latter half of the Middle Umm an-Nar Period. In the addition of the unusually wide wall 428/429 in SS4+ phase 2, we find a valuable parallel to structural activity occurring at roughly the same time at the nearby al-Khafaji settlement. Based on the comparison to Khafaji's Connecting Wall, wall 428/429 likely indicates the presence of a nearby courtyard or outdoor activity area.

Although no clear Late Umm an-Nar contexts have so far been identified, the location where they are most likely to be found, just north of the Late Umm an-Nar Structure SS3, is particularly disturbed by later pitting and rockfall.

Further details of the Settlement Slope's Wadi Sûq occupational history are also revealed in the Structure SS4+ area. The tattered remains of the phase 3 building formed by walls 417 and 431 integrate architectural qualities common to both Late Umm an-Nar and Early Wadi Sûq construction styles. With these wall fragments, we may be seeing a transitional phase between architectural traditions. Other phase 3 activity in this area reinforces the pattern already observed in Structure SS1 and SS3 of Early Wadi Sûq reoccupation and alteration of preexisting Umm an-Nar buildings. Wall 409 engages with both Structure SS1's walls 407a and 407b as well as with SS4+ phase 1 wall 416 to create new interior space. Similarly, walls 415 and 423 are likely to have added onto the Middle Umm an-Nar building to the east, although the structural connections do not survive. During the Middle-Late Wadi Sûq (SS4+ phase 4) we see several ephemeral additions to the preexisting buildings (walls 414, 432, and 434), similar to those seen in Structure SS1's phase 5, but no structural activity on the same scale as in the Early Wadi Sûq phase 3. Finally, the SS4+ buildings fall out of use and the area is revisited as the stage for Wadi Sûq mortuary activity in phase 5 and Late Bronze Age visits in phase 6. Overall, this pattern demonstrates the importance of the northwestern Settlement Slope as a location of sustained occupation, increasingly dense architecture, and social interaction.

6.3.5 Structures SS10 & SS11 (Trenches 0902-0903 & 0977-0978)

The final identifiable structures in the excavated portions of the Settlement Slope are the small but fragmentary Structure SS10, which abuts the northwestern end of Structure SS1, and the even more obscure Structure SS11, located 60 cm beneath SS10. Structure SS10 was first investigated by BAP in 2013 and was briefly revisited in 2014 when a 2x4 m sounding was excavated in its southwestern half. The lowest level reached in the sounding revealed the trace remains of Structure SS11, which is likely the earliest building so far known at Bat. While both structures identified in this small area are poorly preserved, their combined use-lives provide valuable information regarding the duration and nature of cultural activity on the Settlement Slope.

The space currently occupied by Structure SS10 has already been mentioned as the location of an indistinct Middle Umm an-Nar activity area associated with SS1 phase 1 (SS1-1; see **Section 6.3.1**). However, the earliest evidence of cultural activity in this location predates the Middle Umm an-Nar activity by a span of what is likely several centuries. Roughly 60 cm below the SS1 phase 1 level, the remains of the poorly preserved Structure SS11 were uncovered (see Fig. 6.22). The exposed portion of this building consists of a linear collection of seven stones resting atop a sterile level of brownish grey clay.[431] To the west of this linear stone feature, interpreted here as a fragmentary wall, is an area of especially flat, compact clay that may represent a floor. Three chert blades were found on this floor surface, but no pottery or other cultural materials were identified. Although the lithics themselves are not distinctive enough to

[431] The excavation exposure is limited to the extent of the 1x0.5 m sounding.

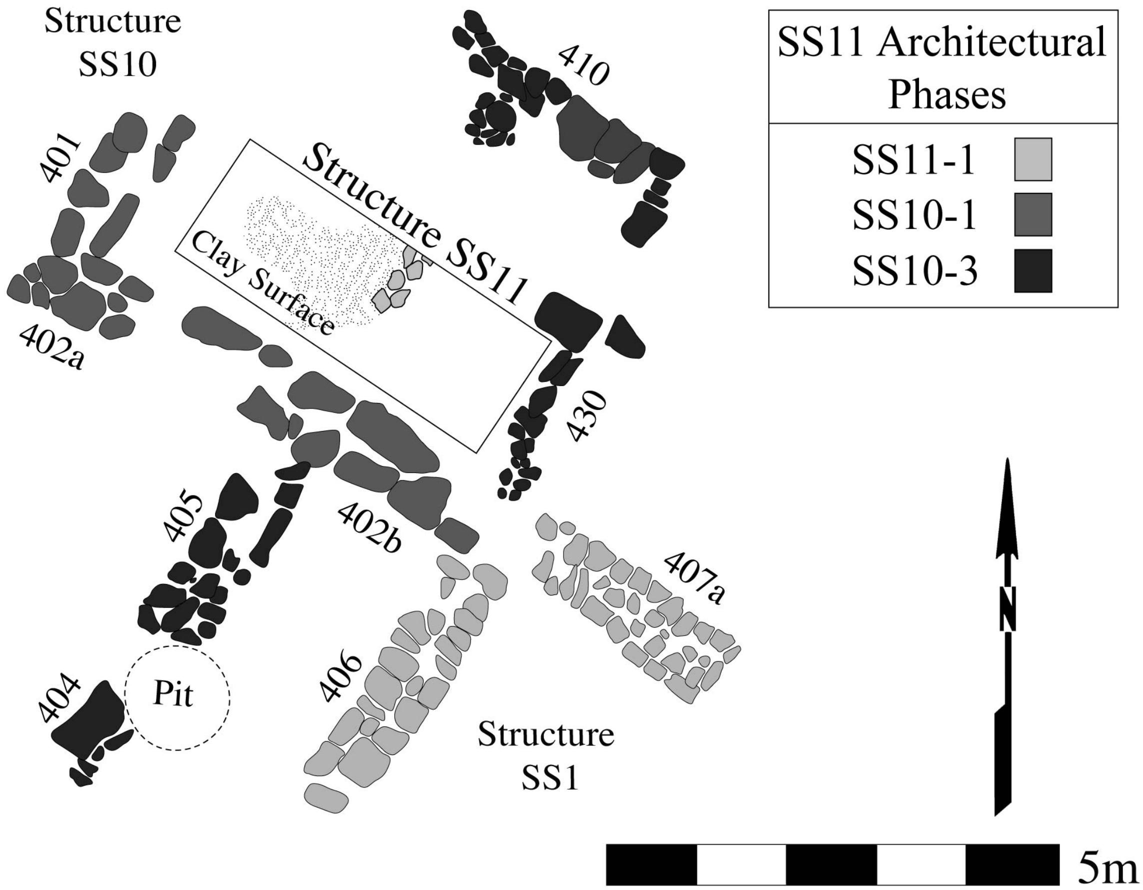

Fig. 6.22: Structure SS11 plan.

be linked to a specific period, the presence of chipped stone tools and the absence of any ceramic sherds is typical of Hafit Period occupations (cf. Cleuziou & Tosi 2007:63-80; Magee 2014:93-98). A tentative Hafit date for Structure SS11 is reinforced by the presence of the nearby ephemeral Hafit Period ash lens below Structure SS1 (pre-SS1-1B), which is located at the same elevation (see **Section 6.3.1** above).[432]

A second clay surface (Pre-SS10-1A) roughly 20 cm above that of Structure SS11 also provides us with hints of the Settlement Slope's early history. This surface and possible activity area were only encountered in the small SS10 sounding and are not

[432] This context is dated to the Hafit Period by radiocarbon analysis (3115-2935 cal. BC). See **Section 6.3.6** for further discussion.

associated with any known building. Instead, the activity area was marked by a lens of dark ash resting directly on top of the clay surface. A collection of extremely small copper prills was recovered from the ash, which implies that smelting was being carried out in the near vicinity. While this narrow context cannot yet be securely dated, I suggest tentatively attributing it to the Early Umm an-Nar Period. Various other copper working installations radiocarbon dated to the Early Umm an-Nar have been identified closer to the Settlement Slope tower (1156; cf. Mortimer 2016:138-139). The flat northwestern end of the Settlement Slope hill is a logical location for further metallurgical activities to have been carried out during this period.

Another 30 cm above the possible Early Umm an-Nar copper working activity area is the layer of clay and gravel already discussed as a Middle Umm an-Nar activity area (SS1-1). No formal surface or architectural features were identified in this context. Rather, a single ash-filled pit lined with burned stones was uncovered level with the nearby phase 1 foundations of Structure SS1. A C14 sample from this pit yielded a date of 2430-2195 cal. BC (2-σ), confirming its Middle Umm an-Nar use (see **Section 6.3.1** above for further discussion). However, as no artifacts were found in connection with the fire pit, the purpose for this activity area remains unclear.

The first phase of Structure SS10 (SS10-1) is found a further 15 cm above that of the Middle Umm an-Nar fire pit (see Fig. 6.23). On this level we find the fragmentary remains of walls 401, 402a, 402b,[433] and 410 set into a layer of silty clay and gravel.

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[433] Walls 402a and 402b are almost certainly the same wall. However, due to the poor preservation in the center of the wall, the two ends were recorded as independent features.

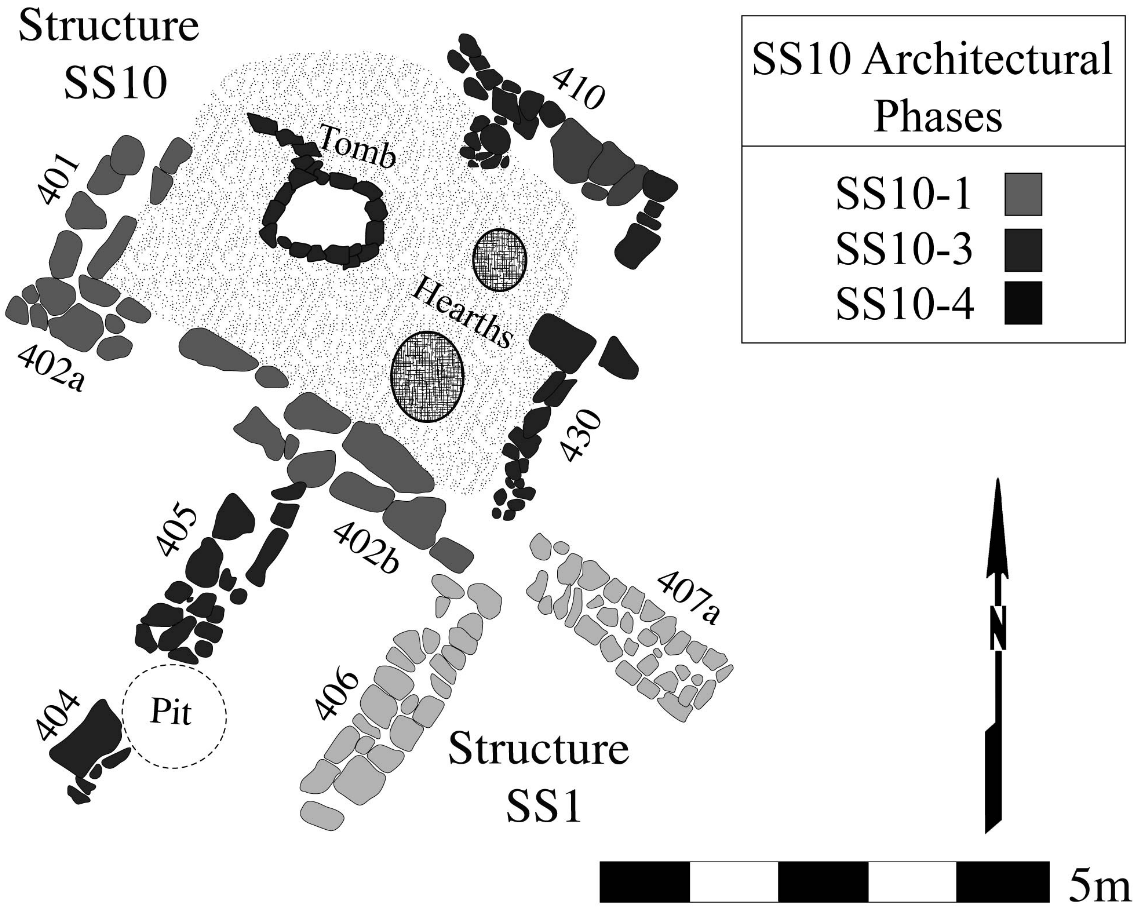

Fig. 6.23: Structure SS10 phased plan.

Together, these walls outline SS10's single preserved room (4.5x2.4 m).[434] Despite the poor state of their preservation, the walls' construction style appears to match that of the Late Umm an-Nar walls found in SS1 phase 4, SS2 phase 3, and SS3 phase 1 – two rows of large stone slabs with a thin spine of mud and rubble. Within the building and level with the surrounding wall foundations, two hearth features are cut into the clay layer. Both of these hearths contained prills and pieces of copper scrap, while one also contained a crucible fragment with copper residue adhering to its surface. These finds

[434] Although the southeastern wall 430 appears to be from a later construction phase, the wall's location is used here to estimate the size of the Structure SS10 room.

strongly suggest that metallurgical activities were being carried out within Structure SS10 during its first use phase. The precise date of this phase is uncertain but can be linked to the Late Umm an-Nar Period based on ceramic assemblages and architectural comparison with areas of the Settlement Slope already discussed.

A second architectural phase (SS10-3)[435] is visible in Structure SS10 in what appears to be an episode of hastily executed repairs in wall 410 and the (re)construction of wall 430. In this phase, the northwestern and southeastern ends of wall 410 are patched with sections of notably smaller, irregularly shaped stones laid without evident mortar. Wall 430, which marks the southeastern side of the building,[436] is assembled with a similar construction style. No floor level was identified in association with this ephemeral construction event. Nevertheless, I suggest that the use-phase can be tentatively dated to the Middle-Late Wadi Sûq Period based on comparison with the Structure SS1 phase 6 walls to the southwest[437] and the presence of a substantial number of Wadi Sûq sherds in the surrounding fill. While not nearly as wide as the SS1 walls, Structure SS10's phase 2 walls share a similar haphazard arrangement, lack of mortar, and informal use contexts.[438] The purpose of this space in the building's second use

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[435] Although this is the second visible architectural phase, I suggest that it is Structure SS10's third occupational phase. This interpretation is based on the presence of Early Wadi Sûq ceramics within the structure and stylistic differences between the SS10-3 wall construction style and those of other Early Wadi Sûq walls on the Settlement Slope (see SS1-5).

[436] It is unclear if Wall 430 is a unique addition to Structure SS10 or if it is a reconstruction of an earlier wall. The positioning of wall 430 roughly in line with the earlier (SS1 phase 1) wall 406 to the southwest suggests the likelihood of an earlier wall existing in this location.

[437] See walls 403 and 404/405, discussed in **Section 6.3.1** above.

[438] The lack of mortar and small size of of the stones make the SS10 phase 2 wall particularly at risk for erosion damage. Differences in the size of the SS10 phase 1 walls and the better preserved SS1 phase 6 may be explained by such erosion damage.

phase is uncertain, but can likely also be paralleled to the Middle-Late Wadi Sûq activity in Structure SS1.

In a final cultural event (SS10-3), a small Wadi Sûq tomb is cut into the center of Structure SS10's interior (see Fig. 6.24). The circular tomb is roughly level with the phase 2 wall foundations, which suggests that the building fell out of active use relatively quickly in the Middle-Late Wadi Sûq Period, before an appreciable amount of sediment could accumulate. The tomb contained a collection of small shell beads, a distinctive Wadi Sûq jar sherd with a maker's mark cut into its lower body, and a small grinding quern that was integrated into the tomb wall. Following the tomb installation, the area within and around Structure SS10 appears to have fallen out of use and was gradually covered in a layer of aeolian silt.

Fig. 6.24: Wadi Sûq tomb within Structure SS10.

Structures SS10 & SS11 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
II	SS11-1	Poorly preserved structure and lithic blades	ca. 3100-2900 BCE (?)*
IIIa	Pre-SS10-1A	Metallurgical activity without an associated structure	ca. 2800-2500 BCE (?)*
IVa-b	Pre-SS10-1B	Fire pit activity area loosely associated with Structure SS1	ca. 2500-2200 BCE
V	SS10-1	Construction of SS10 walls 401, 402a, 402b, & 410	ca. 2200-2000 BCE (?)*
VI	SS10-2 (?)**	Possible Early Wadi Sûq occupation	ca. 2000-1900 BCE (?)*
VII	SS10-3	Maintenance to wall 410; (Re)construction of wall 430	ca. 1900-1600 BCE
VII	SS10-4	Abandonment of Structure SS10; Installation of Wadi Sûq tomb	ca. 1900-1600 BCE

Table 6.6: Structures SS10 and SS11 architectural sequence. *Note that the proposed dates of construction phases are tentative. **[439]

The use-history of this section of the Settlement Slope is particularly valuable for its time depth. Through the small sounding in the later Structure SS10, we see the first indications of a permanent Hafit Period occupation on the Settlement Slope in Structure SS11. This occupation persists with repeated structural or activity levels until the site's final abandonment in the Middle-Late Wadi Sûq Period. The fragmentary Structure SS10 fits well with the occupational patterns established in Structures SS1, SS2, and SS3, in which we see a (Late) Umm an-Nar building (SS11-1) with evidence for metallurgical activity reoccupied and modified by later Wadi Sûq occupants (SS11-2 and SS11-3). The

[439] Although there is no clear evidence of an Early Wadi Sûq occupation in Structure SS10, a use-phase dating to this period is tentatively suggested here for the purpose of continuity with the settlement-wide sequence. The clear Early Wadi Sûq occupation in the neighboring Structure SS1 makes a contemporary presence in SS10 extremely likely. Additionally, the Middle-Late Wadi Sûq cleaning noted in Structure SS3 may account for the absence of earlier Wadi Sûq contexts in Structure SS10.

end of Structure SS10's use-life as an active building is clearly marked by the installation of the Middle-Late Wadi Sûq tomb in its center. The superimposed cultural levels found in this location, a rare instance at Bat, demonstrate the prolonged importance of the Settlement Slope as both an ancient occupational and metallurgical production center.

6.3.6 Settlement Slope Occupational Sequence & Umm an-Nar Houses and Households

Now that we have discussed the individual structures and their associated contexts in some detail, we are in a position to consider the Settlement Slope as a whole and to attempt to understand both its occupational sequence and the social and spatial structure of its Umm an-Nar community. Using the surviving settlement remains, to what extent can we define and identify a distinctive Umm an-Nar house and household? In this final subsection, I integrate the use-lives of the buildings and activity areas discussed above into the Settlement Slope's broad occupational phases. By considering patterns in structural form, layout, and evidence of associated activities within each phase, I offer interpretations of building function that move toward understanding the physical Umm an-Nar house and the composition and socioeconomic behavior of the Umm an-Nar household. The Settlement Slope's Early Bronze Age community emerges as one of household groups centered around courtyard houses that grows in social complexity over the course of the Umm an-Nar Period.

Using the excavated contexts, particularly the architecture, discussed in the sub-sections above, I was able to reconstruct an occupational sequence for the excavated areas of the Settlement Slope that aligns with the chronologies already proposed by

Mortimer (2016) and Kerr (2016). This sequence demonstrates the Settlement Slope's extremely long history of occupation – from the Middle Neolithic through the Early Islamic – and shows that the greatest structural activity took place at the site between the Middle Umm an-Nar and the Late Wadi Sûq periods. Although, for the purposes of this dissertation, I focus on the Umm an-Nar occupational remains, we should not overlook the significance of the Neolithic, Hafit, and Wadi Sûq communities that also occupied this space.[440]

Settlement Slope Occupational Sequence

Bat Site Phase	Structure SS1	Structure SS2	Structure SS3	Structure SS4+	Structures SS10 & SS11	Date	Period
I	Pre-SS1-1A	-	-	-	-	ca. 5000-4400 BCE	Middle Neolithic
II	Pre-SS1-1B	-	-	-	SS11-1	ca. 3100–2900 BCE	Hafit
IIIa	-	-	-	-	Pre-SS10-1A (Activity Area)	ca. 2800-2650 BCE	Early Umm an-Nar
IIIb (Hiatus)	-	-	-	-	-	ca. 2650-2500 BCE	Early Umm an-Nar
IVa & b	SS1-1 & SS1-2	SS2-1	-	SS4-1	Pre-SS10-1B (Activity Area)	ca. 2500-2400 BCE	Middle Umm an-Nar
IVc	SS1-3	SS2-2	-	SS4-2	-	ca. 2400-2200 BCE	Middle Umm an-Nar
V	SS1-4	SS2-3	SS3-1	-	SS10-1	ca. 2200-2000 BCE	Late Umm an-Nar

[440] For more on the Settlement Slope's Wadi Sûq community, see Kerr 2016. Further excavation is necessary before it is possible to draw broader interpretations of the site's Neolithic and Hafit settlements.

Bat Site Phase	Structure SS1	Structure SS2	Structure SS3	Structure SS4+	Structures SS10 & SS11	Date	Period
VI	SS1-5	SS2-4	SS3-2	SS4-3	SS10-2 (?)	ca. 2000-1900 BCE	Early Wadi Sûq
VII	SS1-6	-	SS3-3	SS4-4 & SS4-5	SS10-3 & SS10-4	ca. 1900-1600 BCE	Middle-Late Wadi Sûq
VIII	Pitting	-	-	Pitting	-	ca. 1600-1300 BCE	Late Bronze Age
IX	-	-	-	-	-	ca. 1300-600 BCE	Iron Age
X	-	-	-	-	-	ca. 700-1900 CE	Islamic
XI	-	-	-	-	-	ca. 1900 CE - Present	Natural Accumulation

Table 6.7: Settlement Slope overall occupational sequence and chronology.

Long before the Umm an-Nar occupation of the Settlement Slope, the flat northwestern end of the site had already been the location of Middle Neolithic (Bat Phase I; Pre-SS1-1A) and Hafit Period (Bat Phase II; Pre-SS1-1B) occupations. Our knowledge of either site phase is limited by the small excavation exposures where the early levels were reached. Nevertheless, we can postulate that both were somewhat more substantial than passing encampments due to the traces of stone architecture found in the Neolithic context below Structure SS1 and in the Hafit Structure SS11. In both examples, the architecture and possible activity areas were too poorly preserved for conclusions to be drawn regarding construction style, building form, or the duration if their occupations. However, we do find some tentative indication of the Hafit community's economy in the ash lens identified running beneath Structure SS1. The copper prills found within this ash layer indicate that the metallurgical tradition which characterizes the Settlement Slope in later periods was already a feature of the site's economy at least as far back as the Hafit Period.

The Settlement Slope's Early Umm an-Nar Period (Bat Phase III) witnessed the construction of the site's monumental tower (Site 1156) and metallurgical activities being carried out in the ditch features that surround it (cf. Mortimer 2016:138-139; see also **Section 4.3.1**). Little Early Umm an-Nar material was recovered from secure contexts on the Settlement Slope's flat northwestern end.[441] Yet, the single Bat Phase IIIa activity area that was identified in this part of the site, located above Structure SS11 and below SS10 (Pre-SS10-1B), demonstrates that copper working was also taking place during this period at some distance from the tower. Combined, these metallurgical contexts (i.e., in the tower ditches and Pre-SS10-1B) represent a small-scale, 'cottage industry' level of production (Thornton *personal communication*) that probably reflects a relatively small Early Umm an-Nar community. Further excavation is necessary to clarify the scale and nature the Settlement Slope's Bat Phase III occupation.

In the Middle Umm an-Nar (Bat Phases IVa-c), structural and domestic activity at the Settlement Slope increases dramatically. The monumental tower falls out of use and rectilinear buildings are constructed partially atop the earlier monument and on the flat northwestern area. In these buildings (Structures SS1, SS2, and possibly SS4+) we see

[441] A greater quantity of ceramic sherds stylistically datable to the Early Umm an-Nar Period have been recovered from stratigraphically mixed contexts on the Settlement Slope's northwestern end (see **Section 4.3.1** for further discussion).

the development of a structural type that I suggest can be tentatively identified as an Umm an-Nar house:[442] rectangular structures with a semi-integrated floor plan formed by interior cross-walls that partition roughly half the width of the building.[443] While building sizes vary,[444] their semi-integrated rooms consistently measure between 1.5 and 3 m in width.[445] Wall foundations are constructed of two rows of dovetailed limestones set into a mud mortar and presumably supported a superstructure that has not survived in the archaeological record.[446] Each building also appears to have been associated with an outdoor activity area or courtyard situated along its eastern or southern face.[447]

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442 This observation is not meant to argue that all Umm an-Nar houses necessarily follow this building plan or construction materials. It may be that a diverse array of Umm an-Nar house structures originally existed at the Settlement Slope and elsewhere but have not survived in the archaeological record. Nevertheless, in the limited excavated areas of the Settlement Slope and al-Khafaji (see **Section 6.4** below), buildings of this semi-integrated type are (with the exception of SS2, which had no preserved interior contexts) consistently found in association with evidence of domestic activities. These buildings thus represent the first clear Umm an-Nar house building type so far identified on the Bat landscape.

443 The interior dividing walls in Structure SS1 were not added until SS Phase Vc, slightly later than Structures SS2 and SS4+. This may indicate that the building was repurposed to a new function in SS1-3 or that its users simply adopted a floor plan that was being successfully popularized by the neighboring buildings.

Additionally, it should be noted that the easternmost room of Structure SS2 was fully enclosed in SS Phase Vc, providing it with greater privacy than the the building's other semi-integrated rooms.

444 Structure SS1 measures 8.75x6.5 m in its Middle Umm an-Nar phases; Structure SS2 measures 14.5x7.5; the Middle Umm an-Nar remains of Structure SS4+ are too fragmentary for measurements.

445 An exception to this is the easternmost room of Structure SS2, which measures 4 m in width.

446 SS Phase V wall foundations are consistently between 60 and 80 cm in width and are preserved between 1 and 3 stone courses in height.

447 Although no evidence of such outdoor activities was recovered in association with Structure SS2, we can tentatively assume the existence of this space to the east of the building based on the courtyard or enclosure wall added around this area in the Late Umm an-Nar (Bat Phase V; SS2-3).

The small activity area associated with Structure SS4+ is located along its southwestern exterior face (along walls 426 and 428/429), in contrast with the eastern activity areas of Structures SS1 and SS2. However, as Structure SS4+ appears to be oriented northeast-southwest, as opposed to the northwest-southeast alignment found in SS1 and SS2, this organization of interior-exterior space may follow the same pattern as the other two buildings.

Although relatively limited use contexts were found within these buildings, the materials that do survive consistently suggest that domestic-type activities (i.e., food production, small-scale storage, craft production, and waste disposal) were carried out either inside of or immediately next to them. The clearest examples are found in Structure SS1. The Middle Umm an-Nar contexts within the building include an in situ hearth with nearby utilitarian ceramics that likely indicate food preparation (SS1-1), large jar sherds that suggest storage, and a collection of crucible fragments with associated ash, copper prills, and slag that clearly represent metallurgical activity (SS1-3). The outdoor activity area to the east of Structure SS1 (phase 1-3) also contributes to the building's functional profile.[448] Here we noted the presence of accumulated domestic-type debris, including: utilitarian ceramic sherds, fragments of oven linings, pieces of copper scrap, and a crucible fragment. In Bat Phase IV, Structure SS1 thus appears to have been the stage for domestic and metallurgical activities in both its interior and exterior spaces. While Middle Umm an-Nar use contexts are not as well preserved in Structures SS2 and SS4+, we can expect these buildings to have served comparable functions based on similarities in their floor plans and the locations of their outdoor activity areas.[449]

If we accept these semi-integrated buildings as houses for portions of the Settlement Slope's Middle Umm an-Nar community, the physical characteristics of

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[448] The association between this activity area and Structure SS1 is particularly strong because of both its location immediately next to the building and the potential location of a doorway through SS1's eastern door, which would have led directly into the activity area. The second activity area, to the northwest of Structure SS1, is also likely associated with this building. However, its limited contexts make less useful in the building's interpretation.

[449] A small exterior surface was also identified just south of the Middle Umm an-Nar fragments of Structure SS4+, which featured an accumulation of ceramic sherds and may have served as the stage for similar functions as the SS1-1 activity area.

Structures SS1, SS2, and SS4+ as well as their associated contexts can reveal qualities of their inhabiting households. Based on two frequently cited estimates of the amount of roofed space necessary per individual (Byrd 2000; Naroll 1962; see **Section 2.2** for further discussion), the Middle Umm an-Nar houses on the Settlement Slope were home to relatively small household groups (see Tables 6.8 & 6.9). The well-preserved Structure SS1 provided space for up to four or six individuals in Bat Phase IVa-b and up to three or five individuals in Bat Phase IVc.[450] This population estimate roughly corresponds to the average nuclear family size in the Near East of four to five individuals (Watson 1979:132). The somewhat larger Structure SS2, in contrast, could have accommodated a population of up to nine or 13 individuals in Bat Phase IVa-b and between eight and 12 individuals in Bat Phase IVc.[451] The size and possible population of Structure SS2 may represent a larger household group (e.g., a large nuclear family or an extended family or non-familial household)[452] or a difference in the household economies of SS1 and SS2. While the Middle Umm an-Nar remains of Structure SS4+ are too fragmentary for a full building plan to be reconstructed, the surviving wall fragments appear to represent a structure that was closer in scale to SS1 than to SS2.

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[450] The slight decrease in Structure SS1's roofed area (and thus estimated population) is due to the addition of its interior cross-walls.

[451] Similar to Structure SS1, the slight decrease in Structure SS2's roofed area (and thus estimated population) is due to the addition of the large interior cross-wall 507.

[452] Cohabitation of extended family groups (i.e., a nuclear family as well as unmarried adult relatives) in a single house is not uncommon in the Near Eastern ethnographic record (Horne 1994:101-104; see also Kramer 1982b; Watson 1979).

Settlement Slope Middle Umm an-Nar (Bat Phase IVa-b) Population

Structure, Phase	Number of Rooms	Total Roofed Area (m^2)	Population Estimate 1: 10 m^2 per person (Naroll 1962)	Population Estimate 2: 7-7.5 m^2 per person (Byrd 2000)
SS1, Phase 2	1	44	4	5-6
SS2, Phase 1	3	93	9	12-13
SS4, Phase 1	2	12*	1	1
Total	**-**	**149**	**14**	**18-20**

Table 6.8: Population estimates for the Middle Umm an-Nar (Bat Phase IVb) structures on the northwestern Settlement Slope. * Indicates fragmentary building remains. The original structure would have been larger.

Settlement Slope Middle Umm an-Nar (Bat Phase IVc) Population

Structure, Phase	Number of Rooms	Total Roofed Area (m^2)	Population Estimate 1: 10 m^2 per person (Naroll 1962)	Population Estimate 2: 7-7.5 m^2 per person (Byrd 2000)
SS1, Phase 3	3	37	3	5
SS2, Phase 2	4	86	8	11-12
SS4, Phase 2	2	12*	1	1
Total	**-**	**135**	**12**	**17-18**

Table 6.9: Population estimates for the Middle Umm an-Nar (Bat Phase IVb) structures on the northwestern Settlement Slope. * Indicates fragmentary building remains. The original structure would have been larger.

The architectural form and layout of the Settlement Slope houses and the locations where certain tasks were carried out within and around them can also be used to refine our understanding of their resident households' lifestyles, identities, and lived experiences. As the dwelling stage for a household group, the physical structure and layout of a house mediates the behaviors and interactions of household members both with one another and with the wider community (cf. Hutson 2008; Ingold 2000; McMahon 2013; Meskell 2005; Rapoport 1990; Steadman 2010; Thomas 1993; Tilley

1994).[453] Structure SS1, the best preserved of the Settlement Slope's Middle Umm an-Nar houses, reveals some aspects of how the semi-integrated house layout influenced the activities and social interactions of its Umm an-Nar household.

In Structure SS1's first two use phases (SS1-1 and SS1-2; Bat Phase IVa-b), the building interior was not yet sub-divided by the partial cross-walls. A formal entryway, marked by the large threshold stone in wall 408b/c, opened immediately onto the gravel street that bordered the southwestern side of the house and led into its northwestern quarter. Although the known use contexts from either phase are limited, in both a hearth was located in the building's northeastern corner immediately opposite the doorway. The otherwise unstructured interior space indicates a flexible, multifunctional environment where household members could have interacted with one another and carried out tasks without formal, structural divisions. Additionally, the outdoor activity area located immediately southeast of Structure SS1 was also in use during these phases. Evidence collected from the area indicates that it was a multifunctional space used for food preparation, waste disposal, and metallurgical craft production. The area was connected to Structure SS1 through a possible doorway in the the building's southeastern wall but was also visibly and physically accessible from the street to the south. The unrestricted access to this outdoor activity area suggests that, in addition to being a stage for various

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[453] Although no trace of superstructure was found on any of the excavated Settlement Slope rectilinear buildings, I interpret the stone wall foundations as representing the locations of solid walls that would have blocked lines of sight. This assumption is based on the discovery of a mudbrick superstructure on Khafaji's Structure KA4, which has a similar semi-integrated floor plan, and ethnographic examples of buildings constructed with date palm superstructures. Even when the more permeable date palms were used for wall construction, a degree of privacy was ensured for a building's innermost rooms (cf. Costa 1983; Ragette 2003).

household tasks, it was also a space where the SS1 household members could engage with one another and with the Settlement Slope's wider community.

With the addition of the interior walls 418 and 419a (SS1-3, Bat Phase IVc), Structure SS1 was transformed into a semi-integrated building.[454] The new floor plan limited access to the house interior from the public street to only its northwestern room. This first room was at least partially dedicated to metallurgical activity, as indicated by a burned area with copper prills, slag, and crucible fragments just inside and to the north of the doorway.[455] In the new circulation pattern, SS1's center and southeastern rooms were created as areas with an additional level of privacy than had previously existed in the house. The larger than average number of jar sherds recovered from the center room suggests that during this phase it served as the household's primary storage area. No SS1-3 use contexts were identified in the house's southeastern room. Nevertheless, a possible function for the room can be interpreted by based on its connection with the outdoor activity area through the eastern doorway. This structural link to the semi-public outdoor space suggests that the southeastern room may have served as a more private living area, where the household members could interact and perhaps consume meals prepared in the cooking contexts just outside.

The increasingly formalized division and use of space in Structure SS1 over the course of the Middle Umm an-Nar Period reveals further characteristics of the household

[454] A similar increase in the internal subdivision of a house in this period can be seen in the addition of the large wall 507 in Structure SS2 during Bat Phase IVc. Although no use contexts were found within this building, the addition of the new wall created a fully enclosed room at the southeastern end of the building, differentiating that space from the semi-integrated northwestern rooms.

[455] This metallurgical activity was likely connected to the semicircular, metallurgical installation located just north of Structure SS1's southwestern corner. The positioning of the metallurgical activity area in SS1's northwestern room next to it doorway may have provided necessary air circulation.

that occupied it. The small household group (presumably consisting of a nuclear family) initially (SS1-1 & -2) organized their activities and interactions into the general settings of the private house interior and the semi-public outdoor activity area. Tasks such as food preparation and metallurgical craft production appear to have been carried out in both spaces. This activity pattern shifts with the addition of the interior cross-walls in SS1-3. The specialized metallurgical activity was carried out in the northwestern room, possibly in connection with the outdoor installation just north of the building, and was likely conducted by a specific, skilled household member(s). Food preparation and waste disposal continued to take place in the semi-public activity area on the far side of the house from the metallurgical activity. This more formalized organization of both house space and household activities suggests a corresponding division of labor within the household group (i.e., skilled metallurgical crafting vs. general household tasks such as food preparation; Banning 1997; 2010; Kent 1990:127; 1991:439-45; Rapoport 1990:9-10; Steadman 2000; 2015). The creation of the center storage room within Structure SS1 demonstrates the household's economic independence (i.e., the household maintained its own store of essential materials such as food), while the southeastern room suggests a growing social need to define public and private living spaces (cf. Chesson 2003; Hutson 2008; Klucas & Schwartz 2015; Steadman 2000).[456]

Moving on to the Late Umm an-Nar Period (Bat Phase V), we see the Settlement Slope's occupational patterns differ slightly from those that we observed in the Middle

[456] A possible second example of the increasing social need to define public and private spaces may be the addition of the large Wall 428/429 to the southern corner of Structure SS4+ in Bat Phase IVc (see **Section 6.3.4**). Based on comparison with the structurally similar Connecting Wall at the Khafaji settlement, this wall was likely added in order to enclose an outdoor activity area or courtyard (see **Section 6.4.4**). This addition would thus have transformed a semi-public space into a semi-private space.

Umm an-Nar. While the semi-integrated buildings (houses) that characterized Bat Phase IV (Structures SS1, SS2, and SS4+) continue to be occupied, new Bat Phase V additions are apparent through their slightly different construction style and organizational strategies. The Late Umm an-Nar architecture is identifiable by its wall foundations composed of two rows of limestone blocks with a thin core of rubble, rather than the interlocked masonry of the Middle Umm an-Nar dovetailed stones. The flat, northwestern end of the Settlement Slope also becomes increasingly densely occupied during this period, with Structure SS1 boxed in by the new Structure SS3 to its east and Structure SS10 to its northwest. Structure SS3, while fragmentary, features comparable room dimensions to the semi-integrated building type and may have followed a similar floor plan.[457] Structure SS10 is also in fragmentary condition, yet enough of it survives to indicate notably different dimensions than those found in the semi-integrated houses.

The Late Umm an-Nar house sizes found in the Settlement Slope's northwestern area are comparable to those inhabited by the site's Middle Umm an-Nar community (see Table 6.10). The roofed areas in Structures SS1 and SS2 remain the same, which suggests that they continued to be occupied by relatively small households of between three and five individuals and eight and twelve individuals respectively. While the preserved remains of Structure SS3 are fragmentary, it is possible to extrapolate a rough household size based on the single surviving room. If we assume that the building

[457] If we understand Structure SS3 as originally extending further to the northeast, we can read the short wall 420a as a cross-wall extending partially across the building to form the semi-integrated interior. This room would then have been fully enclosed in the subsequent Early Wadi Sûq Period (SS Phase VII; SS3-2). Comparable to SS1, Structure SS3 was entered through a doorway from the south. However, the presence of wall 422, which abuts the southwestern end of wall 421, brings the identification of this structure as a semi-integrated building into question.

originally followed a similar semi-integrated floor plan as found in Structures SS1 and SS2 and, like them, had three or four interior rooms similar in size to the preserved room then we can estimate a household composed of between three and six individuals. The size of these Late Umm an-Nar household groups suggests that they probably represent nuclear or (in the case of SS2) small extended families.

Settlement Slope Middle Umm an-Nar (Bat Phase IVc) Population[458]

Structure, Phase	Number of Rooms	Total Roofed Area (m^2)	Population Estimate 1: 10 m^2 per person (Naroll 1962)	Population Estimate 2: 7-7.5 m^2 per person (Byrd 2000)
SS1, Phase 1	3	37	3	5
SS2, Phase 3	4	86	8	11-12
SS3, Phase 1	1	11*	1	1
Total	-	**134**	**12**	**17-18**

Table 6.10: Population estimates for the Late Umm an-Nar (Bat Phase V) structures on the northwestern Settlement Slope. * Indicates fragmentary building remains. The original structure would have been larger.

The most significant change to the spatial organization of the Settlement Slope's houses and of the household tasks carried out within/around them in the Late Umm an-Nar Period (Bat Phase V) is the discarding or enclosing of the Middle Umm an-Nar (Phase IV) outdoor activity areas. Examples of this are found in the repurposing of Structure SS1's eastern activity area for the construction of the new Structure SS3 and the enclosing of Structure SS2's courtyard.[459] For Structure SS1, the loss of the outdoor

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458 Structures SS9 and SS10 are not included in the population estimates, as neither building appears to have functioned as a house.

459 Additionally, a precursor to this trend may the addition of wall 428/429 to the southern corner of Structure SS4+ in Bat Phase IVc (see **Section 6.3.4**). As discussed above, this large wall may have enclosed an outdoor activity area and created a formal enclosed courtyard.

space suggests an increase in the privacy needed for the general household tasks and interactions that were previously carried out in the semi-public setting.[460] A new indoor (and thus more private) location for these activities is suggested by the evidence of burning and possible food preparation found within the Late Umm an-Nar contexts of Structure SS3. Such growing importance placed on household privacy reflects a corresponding growth in social complexity and household independence, both in terms of economy and identity (cf. BaHammam 2006; Chesson 2003; Hodder 1990; Renfrew 2004; Steadman 2000).

Similar indicators of increasing social complexity can be found in the organization of labor and specialized use of built space by the Late Umm an-Nar SS1 household. This is especially clearly demonstrated by Structure SS10, which appears to have been constructed specifically to serve as a metallurgical workshop. The interior of the small building is centered around two hearths and contained significant quantities of copper debris (see **Section 6.3.5**). This workshop and its metallurgical contents contrasts sharply with the domestic assemblage found in the contemporary contexts within the neighboring Structure SS1 (see **Section 6.3.1**). It may be that Structure SS10 was added to the northwestern corner of SS1 in order to differentiate a single household's domestic and specialized craft production spaces. The construction of single-purpose non-domestic buildings further suggests the growing complexity and independence of the Late Umm an-Nar households (cf. Chesson 2003; Hodder 1990; Renfrew 2004; Steadman 2000; see also Horne 1994:87-92; 127)

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[460] It is possible that these tasks were carried out in the outdoor area to the northwest of Structure SS1. However, no evidence for food preparation or waste disposal was recovered from this area.

Elements of the domestic economies practiced by the Late Umm an-Nar households of the Settlement Slope can also be found in Structure SS1 and its neighboring Structure SS10. An agricultural component of the SS1 household economy is suggested by the copper sickle found in the house's southeastern room. The importance of oasis agriculture as a widely recognized cornerstone of Umm an-Nar subsistence strategies throughout the Omani interior and evidence for such agricultural practices have been documented at Bat (cf. Brunswig 1989; Cleuziou 1996; Tengberg 2003; 2012; 2016). It is thus probable that the Settlement Slope households at least partially relied on and engaged in oasis agriculture as a part of their subsistence strategy. The metallurgical activities carried out in Structure SS10 during this period, although situated in a specialized workshop space, appear to have been carried out at a relatively small scale that would have supported the needs of the household (Thornton *personal communication*). Such small-scale production of copper tools would complement a household economy otherwise focused on agriculture. While the organization of the Umm an-Nar agricultural practices at Bat are uncertain, the independent storage and tool production capabilities demonstrated by the SS1 household suggests that the Late Umm an-Nar community at the Settlement Slope was composed of economically independent households that relied on an agricultural economic foundation.

The Settlement Slope's Umm an-Nar community thus appears to have been composed of independent household groups that became increasingly private and spatially defined as the period progressed. Basic household tasks, interactions, and storage came to be organized by the structural divisions within the house or, in the case of

Structures SS1 and SS10, in various buildings that were controlled by the household. The gradually increasing social complexity that is suggested by these trends in household behavior and organization are disrupted in the subsequent Wadi phases (Bat Phases VI & VII). During these periods, the Umm an-Nar structures (with the exception of Structure SS2) continue to be occupied, but with less well-defined patterns of behavioral organization. New additions to the settlement are also constructed in visibly distinct architectural styles characterized by single course foundations with either upturned facing stones (Bat Phase VI) or large, flat flag stones (Bat Phase VII). A full analysis of the Settlement Slope's Wadi Sûq occupation is beyond the scope of this dissertation (see Kerr 2016 for further discussion). For the purposes of the present discussion, it is sufficient to note that this Wadi Sûq change in behavioral patterns and use of built space indicates that the Settlement Slope's new community followed a social organization distinct from that of its Umm an-Nar predecessors.

6.4 Al-Khafaji

The site of al-Khafaji is located roughly 250 m to the southwest of the Settlement Slope and was occupied from the Hafit through the Middle Umm an-Nar Period. The known extent of the site is centered on a monumental stone tower embedded in the wadi plain, which first attracted Frifelt's attention in 1986. She excavated three small and largely inconclusive test trenches in and around the tower before shifting her attention to the earlier Kasr al-Matariya, 3 km to the east (1989; 2002:103).[461] BAP returned to Khafaji from 2008 to 2010, when Chris Thornton led excavations targeting the site's monumental tower and its use history. Thornton's excavations immediately outside of and to the northeast of the tower also revealed the remains of two rectilinear buildings (Structures KA1 & KA2) and an exterior area of dense occupational debris (Thornton 2016:34-39). Motivated by these chance discoveries, I returned to Khafaji in 2014 and 2015 in order to further explore the rectilinear, possibly domestic structures and to attempt to identify further remains of the Umm an-Nar settlement believed to exist in the general vicinity of the tower.[462]

In this section, I present in detail the findings from the excavated areas surrounding Khafaji's tower where evidence of domestic activity or settlement architecture were discovered (see Fig. 6.25). As at the Settlement Slope, the state of preservation at Khafaji often does not allow for stratigraphic differentiation of occupational phases or identification of floor surfaces. I, thus, depend on the architectural remains as the foundation for my chronological and social interpretations. For each building, I construct a use-life that can be linked to the site chronology and provides a framework for interpreting that building's social function(s). Ultimately, I propose a broad occupational sequence that integrates all of Khafaji's excavated

[461] Frifelt's excavations revealed a series of cross-walls within the tower, comparable to those found in Kasr al-Rojoom, and a feature she interpreted as a water channel outside the tower. She concluded that these features and their surrounding contexts were disturbed by later (Iron Age and Early Islamic) activity and, therefore, could not be dated (1989; 2002:103). During his later excavations of the tower, Thornton was able to confirm an Islamic reuse of the monument and to successfully differentiate between the Umm an-Nar and later contexts (2016:28-34). In my excavations in the areas around the tower, I encountered some evidence of Iron Age activity (especially pitting), but nothing to indicate a large scale occupation.

[462] Further excavations at Khafaji have also been carried out at greater distances from the site's tower for BAP by Smiti Nathan. The results of these excavations will be presented in her forthcoming dissertation.

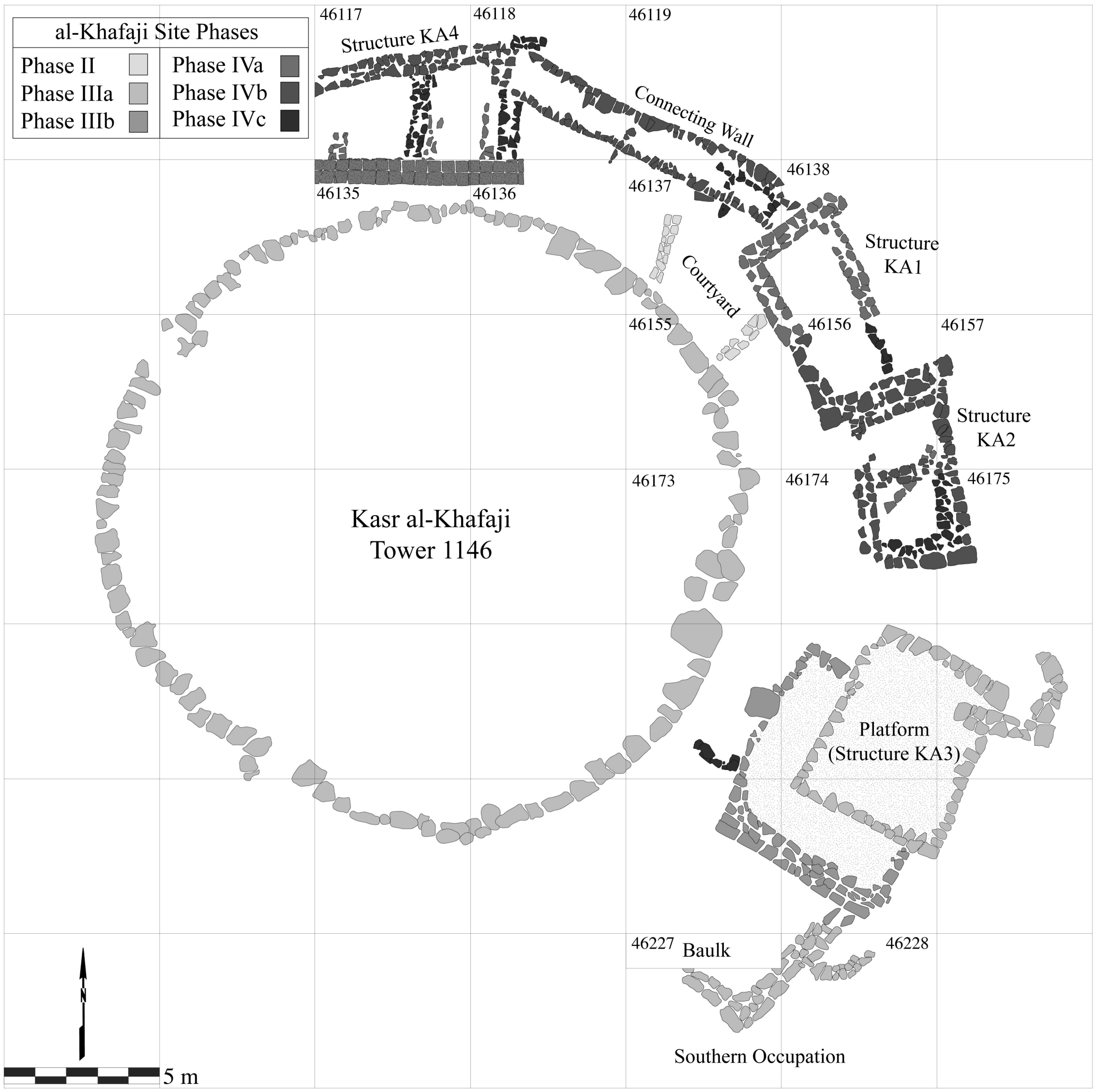

Fig. 6.25: al-Khafaji site plan indicating grid and Umm an-Nar architectural phasing. See below for more detailed plans.

structures and identify possible indicators of household social groups within that sequence.

Comparable to the system used at the Settlement Slope, BAP's excavations at al-Khafaji are organized according to a 5x5 m grid that covers the known extent of the site.[463] Excavators recorded all finds according to trench number and with a unique 'lot' number (see **Section 6.3** for further discussion on recording methodology).[464] Due to both BAP's research strategy and local regulations, excavations at Khafaji have so far been limited to areas within a 20 m radius of the tower. As a result, excavation exposures disproportionately reflect contexts on the tower foundation mound.[465] The stratigraphy encountered atop the tower mound generally consists of: a thin layer of surface silt and gravel; a thick layer of homogenous, dense, grey-brown clay with occasional lenses of wadi gravel; and a compact layer of clean, grey-brown clay that makes up the body of the foundation mound (see also Thornton 2016:28, Fig. 3.2). The layer of dense, grey-brown clay resting atop the foundation mound contains the entirety of Khafaji's known Umm an-Nar occupation, although only rarely can stratigraphic breaks be found between occupational phases. A deep sounding (Trench A) excavated through the tower's interior revealed that the Umm an-Nar monument was built on top of an earlier Hafit occupation (Thornton 2016:39-46, Figs. 3.17 & 18).[466] Beyond the edge of the Umm an-Nar tower

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[463] In contrast to the Settlement Slope grid, Khafaji's grid is oriented according to magnetic north-south. All elevation measurements refer to an arbitrary datum (0,0) with UTM 40N coordinates of 474246.08 E, 2572596.75 N and an elevation of 475.2 m.

[464] Excavations at al-Khafaji were organized according to the grid system with several notable exceptions. Opportunistic soundings excavated in 2009 and 2010 (Trenches A-G) were strategically positioned to follow known architecture rather than the site grid. In later seasons, Trenches B, C, D, and E were integrated into to the standard 5x5 m grid system. For further discussion on these soundings, see Thornton 2016:34-46.

[465] Khafaji's tower foundation mound extends between 5 and 8 m beyond the tower's perimeter before sloping sharply downhill. For further discussion of the tower mound, see **Section 4.3.1**. A similar, more thoroughly documented feature is also known from Kasr al-Matariya (cf. Cable 2016:65-81).

[466] Comparisons between elevations of the Hafit Period remains below the tower (ca. 1.35-1.5 m below datum) and Iron Age remains beyond the tower foundation mound (ca. 2.5-3.0 m below datum) indicate that the Hafit occupation must have also existed on a mound that elevated it above the surrounding wadi valley.

mound, Bronze Age contexts drop sharply downhill below the present limits of excavation.[467] Bedrock has not yet been reached in any location in or around Khafaji.

Building on the Bat site chronology proposed above (see Table 6.1), throughout this section I integrate the Khafaji occupational sequence with that found at the Settlement Slope. The chronological framework already established at Khafaji by Thornton is based primarily on evidence from within or below the site's monumental tower (2016:46-47).[468] The contexts discussed in detail below introduce new temporal information that I use to fine-tune the site's occupational sequence. The result is a refined chronological structure that links broad architectural and occupational phases at both Khafaji and the Settlement Slope. I use this expanded chronology in the sub-sections below as a framework for discussing the settlement's occupational phases and social development (see Table 6.11). The earliest (Hafit) phases of Khafaji's history are known from the results of the deep sounding (Trench A) excavated by Thornton through the tower interior (2016:44-46). These levels exist within the tower's foundation mound, which suggests that Khafaji was already a mounded site at the time when the tower and its clay foundations were constructed. The site's primary occupation, dating to the Early and Middle Umm an-Nar Periods, is well represented in contexts both within and

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[467] Some evidence of an ephemeral Iron Age occupation have been encountered in the areas surrounding Khafaji's tower foundation mound (ca. 2.5-3.0 m below datum).

[468] An exception to this are the settlement contexts unexpectedly encountered by Thornton in the area just northeast of the tower (cf. **Section 6.4.4** below). Two C14 dates from these contexts secure the Middle Umm an-Nar contexts in Thornton's chronology.

surrounding the tower. Finally, Khafaji's latest occupational phases are found in the episodes of Islamic Period reuse of the tower monument.[469]

Bat Site Phase	Defining Activity	Date
I	Middle Neolithic (unrepresented)	ca. 5000-4400 BCE
IIa	Pre/Early Hafit irrigated fields below tower (Desruelles *et al*. 2016; Thornton 2016:46)	ca. 3100-3000 BCE
IIb	Hafit-Late Hafit stone and mudbrick walls beneath tower (Thornton 2016:44-45)	ca. 3000–2800 BCE
IIIa	Construction of Early Umm an-Nar tower and platform; surrounding occupation	ca. 2800-2500 BCE
IIIb	Expansion of monumental platform (Structure KA3)	ca. 2800-2500 BCE
IVa	Middle Umm an-Nar occupation and addition of tower interior cross-walls (Thornton *et al*. 2012)	ca. 2500-2400 BCE
IVb	Middle Umm an-Nar occupation and modifications to some rectilinear buildings	ca. 2500-2400 BCE
IVc	Middle Umm an-Nar occupation and modifications to some rectilinear buildings	ca. 2400-2200 BCE
V	Late Umm an-Nar abandonment	ca. 2200-2000 BCE
VI-VII	Wadi Sûq visitations (?)*	ca. 2000-1600 BCE
VIII	Late Bronze Age visitations (?)*	ca. 1600-1300 BCE
IX	Iron Age visitations	ca. 1300-600 BCE
Xa	Early-Middle Islamic reuse of tower and addition of the Extension Wall (Thornton 2016:30-34)	ca. 700-1500 CE
Xb	Late Islamic reuse of tower and addition of the Ramp Wall (Thornton 2016:30-34)	ca. 1800-1900 CE
XI	Natural Accumulation	ca. 1900 CE - Present

Table 6.11: al-Khafaji occupational phasing. * The evidence for any Wadi Sûq or Late Bronze Age presence at Khafaji is extremely slight, limited to a few sherds from mixed contexts. The phase is included here as a tentative possibility.

[469] For details of Kasr al-Khafaji's use history, from the Early Hafit through the Late Islamic, see Thornton 2016:25-48.

In the sub-sections that follow, I give a detailed description of the occupational contexts encountered in the space surrounding Khafaji's monumental tower. Just as in the previous discussion of the Settlement Slope, I organize my discussions according to structure and trench number. Presented below are Structure KA1 (Trenches 46137-46138 & 46155-46157), Structure KA2 (Trenches 46156-46157 & 46174-46175), Structure KA4 (Trenches 46117-46118 & 46135-46136), the Connecting Wall and Courtyard (Trenches 46118-46119, 46136-46138, 46155-46156, & 46173-46174), and an ephemeral occupation on the southern end of the mound (Trenches 46227 & 46228). In the section conclusion, I propose an overall sequence for Khafaji's known settlement and discuss the physical patterns of that occupation.

6.4.1 Structure KA1 (Trenches 46137-46138 & 46155-46157)

The first rectilinear buildings identified at Khafaji are Structures KA1 and KA2, located to the northeast of the site's tower on the monumental foundation mound. These buildings were first explored by Thornton in 2009 (cf. Thornton 2016:34-39) and were revisited by myself in 2014. Structure KA1, the larger of the two, is well preserved in its southwestern half and demonstrates several architectural phases. Its northeastern portion, in contrast, has been destroyed by later pitting and stone robbing. Although Structure KA1 contained little material culture to inform our interpretation of its function, the building's architectural sequence and spatial context at Khafaji provide clues for how to understand its role in the settlement.

The earliest phase of Structure KA1 is found in walls 901, 902, and 903, which constitute the northwestern half of its surviving remains (see Fig. 6.26). These walls are

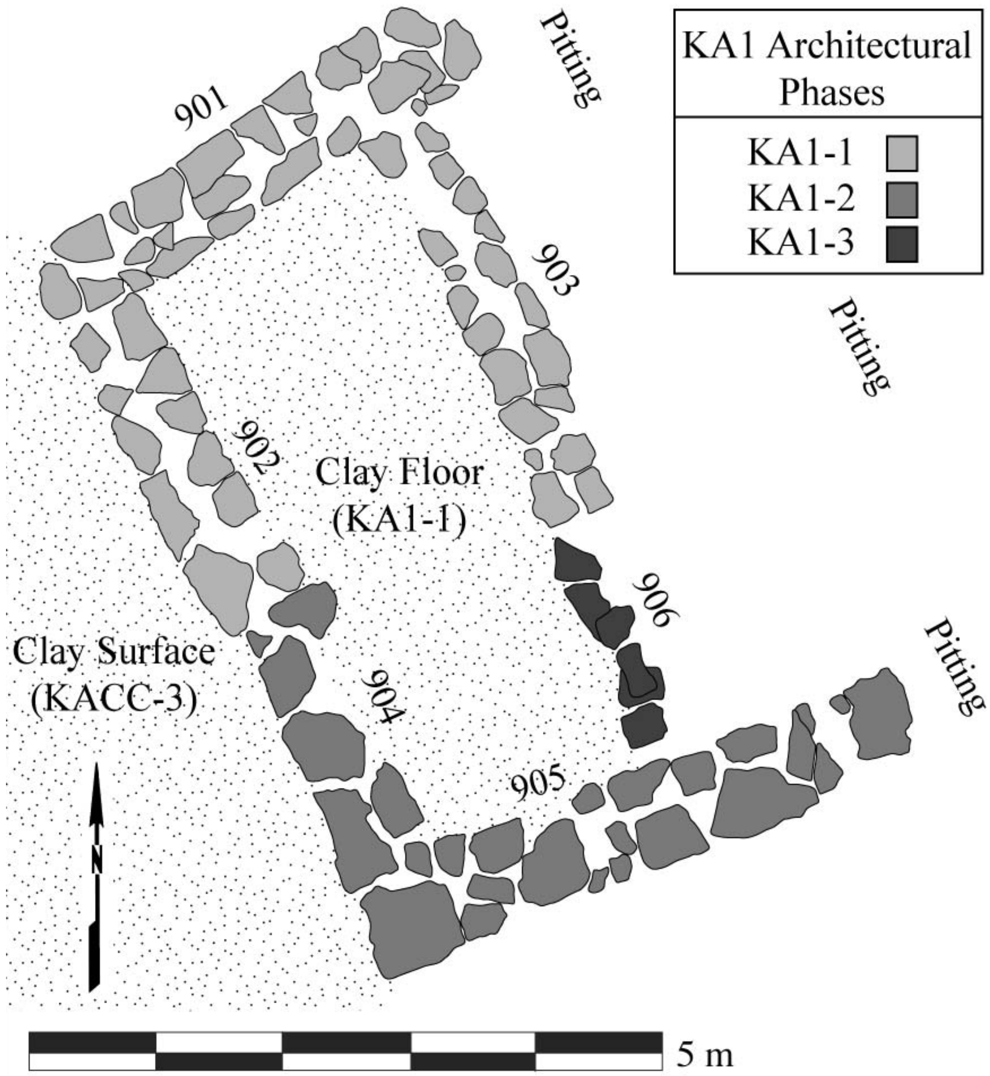

Fig. 6.26: Structure KA1 phased plan.

composed of two rows of dovetailed stones without apparent mortar and are preserved four stone courses (ca. 60 cm) in height. Walls 901 and 902 measure 70-80 cm in width and are bonded in the northwest, where they form the building's exterior corner. The northeastern extent of wall 901 comes to an end 4 m from its bond with wall 902, where it was cut by a later (Iron Age) pitting and stone robbing event.[470] In contrast with 901

[470] The pitting and stone robbing activity that destroyed the northwestern extent of Structure KA1 was poorly defined in the preserved contexts. This activity is dated to the Iron Age based on associated ceramics.

and 902, the interior dividing wall 903 is a slighter 50 cm in width and abuts the inner southeastern face of wall 901. This wall comes to an end after a distance of 3.4 m, roughly two thirds the length of the building. Although the northeastern extent of Structure KA1 does not survive, the presence of this partial interior dividing wall suggests that it may have followed the semi-integrated floor plan found in contemporary structures at the Settlement Slope.[471] All of the KA1 phase 1 walls rest at the same elevation, roughly 95 cm below datum, and are associated with a level floor surface of compact, white-grey clay. Two loaf-shaped grinding stones and a small collection of unremarkable Umm an-Nar pottery[472] were recovered from this floor level. Additionally, a single sherd of a black-on-grey ware canister imported from southeastern Iran was found at a comparable level in the building's northeastern room, near the corner of walls 901 and 903 (cf. Thornton & Ghazal 2016:202-203, Fig. 9.7C). While limited in substance, this assemblage gives Structure KA1 phase 1 a tentative link to domestic activity (i.e., food preparation) and international trade.

Structure KA1's second architectural phase is represented by the reconstruction of the building's southeastern half with walls 904 and 905. These new phase 2 walls are comparable in size (70-80 cm wide) to the earlier phase 1 walls, but are constructed of notably larger stones. They are preserved only 1-2 courses high (ca. 50 cm) and rest 5-10 cm above the foundations of the phase 1 walls (ca. 85 cm below datum). Wall 904 abuts

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[471] Partially subdivided interiors are known from contemporary buildings on the Settlement Slope (Structures SS1, SS2, and SS4+) as well as az-Zebah (Haus III) and possibly Khafaji's own Structure KA4.

[472] With the exception of a single sherd of a Black Slipped Jar from the Indus (cf. Blackman et al. 1989; Méry & Blackman 1999; Thornton & Ghazal 2016:204-206), none of Structure KA1's small assemblage of ceramic sherds could be stylistically dated with greater accuracy than the broad 'Umm an-Nar Period.' In contrast, material culture from the Courtyard space immediately to its north and west provide a rich source of stylistic and chronological materials (see **Section 6.4.4** below for further discussion).

the terminating end of the phase 1 wall 902 and extends the building a further 2.9 m to the southeast, but on a slightly sharper north-northwest/south-southeast alignment than found in the earlier layout. Structure KA1's phase 2 southeastern corner is formed by a particularly large stone (80x80x50 cm) that is integrated into both walls 904 and 905. The southern wall 905 continues from here to the northeast for a further 4.5 m before terminating abruptly, where it is disturbed by Iron Age pitting and stone robbing activity. No floor surface was identified in association with these walls and no artifacts can be securely linked to this second construction phase.

Structure KA1's third and final architectural phase sees the addition of a single line of stones (wall 906) between the southeastern end of the phase 1 wall 903 and the northern inner face of the phase 2 wall 905. This new wall 906 is only 30 cm in width, is preserved 1-2 stone courses in height, and rests roughly 30 cm above the phase 1 foundations (62 cm below datum). Although no floor surface was identified at this level, a ground stone drill base and a concentration of rockfall within Structure KA1's southwestern room were found resting at a comparable elevation to the wall 906 foundations. These finds indicate the presence of a use surface that has not preserved in a visible form. After this last addition, Structure KA1 fell out of use and was gradually covered by accumulating wadi deposits. Visits to the site by Iron Age populations are attested in the building by the pitting and stone robbing that destroyed its northeastern half.[473]

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[473] Iron Age ceramics have also been recovered in some quantities in the area north and east of the tower foundation mound, which further attest to an ephemeral Iron Age occupation. For more on excavations north of the foundation mound, see Nathan *forthcoming*.

Structure KA1 Architectural Sequence & Use-Life

Bat Site Phase	Building Phase	Description	Approximate Date
IVa	KA1-1	Initial construction, surviving in the building's northwestern half	ca. 2500-2400 BCE
IVb	KA1-2	(Re)construction of walls 904 and 905 in the building's southeastern half	ca. 2400-2200 BCE
IVc	KA1-3	Addition of wall 906, subdividing building interior	ca. 2400-2200 BCE
V	-	Late Umm an-Nar abandonment	ca. 2200-2000 BCE
IX	-	Iron Age pitting	ca. 1600 BCE – 0 CE

Table 6.12: Structure KA1 architectural sequence.

In its complete form, Structure KA1 appears to have been a trapezoidal building that was widest in the northeast and narrowest in the southwest. This layout would have taken advantage of the available space on the curving surface of Khafaji's tower foundation mound, which widened with greater distance to the tower. For the first two phases of its use-life, Structure KA1's interior was divided into two semi-integrated rooms by wall 903.[474] In the third use phase, the building's interior was fully partitioned with the addition of the small wall 906. The sparse finds from within the southwestern room (consisting of grinding stones and pottery sherds in phase 1 and a small mortar in phase 3) indicate possible food preparation and/or craft production but leave much to the imagination. In the phase 2 reconstruction event, we see a large labor investment placed on the building and on maintaining its layout. Looking at Structure KA1's broader context, it is notable that the outdoor space immediately to the west of Structure KA1

[474] While it is possible that a third room existed in the destroyed northeastern portion of the building, the limited surface area on the tower foundation mound makes this unlikely.

contained substantial evidence of domestic-type activity (see **Section 6.4.4** below). The substantial size of KA1, its maintenance events, and the adjacent domestic outdoor space can be taken as suggesting a socially important building whose function included some degree of domestic activity.

6.4.2 Structure KA2 (Trenches 46156-46157 & 46174-46175)

Structure KA2, also excavated by Thornton in 2009 (cf. Thornton 2016:38-39) is located immediately south of Structure KA1 (see Fig. 6.27). Similar to KA1, the smaller

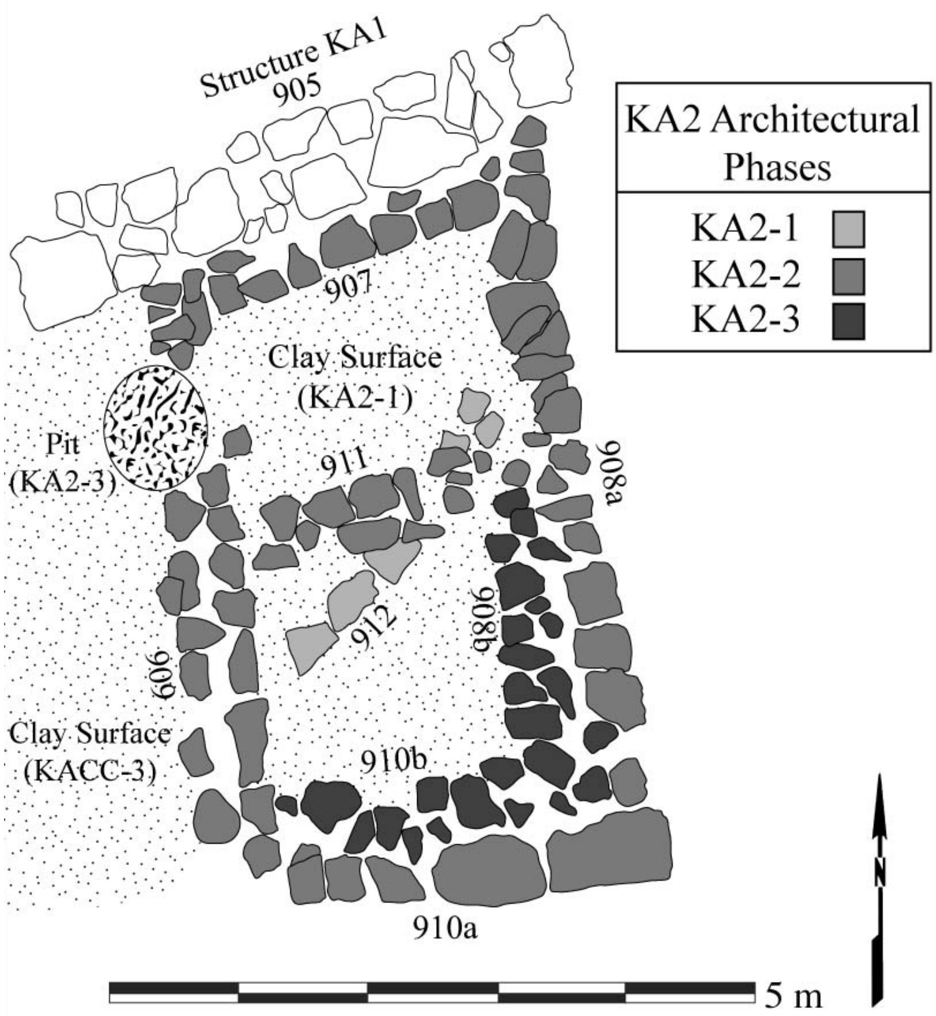

Fig. 6.27: Structure KA2 phased plan.

Structure KA2 contained little material culture that could indicate its function in Khafaji's Umm an-Nar community. Rather, we must depend on the building's architecture and broader context in the Khafaji settlement to inform our interpretation.

The first phase of construction in the area of Structure KA2 is found in a single stone wall (912) that runs northeast-southwest at a much sharper angle than the building's later phases. Wall 912 is roughly 50 cm wide and is constructed of a single course of stones resting on a surface of dense, grey-brown clay 95-100 cm below datum. Rather than an early iteration of Structure KA2, this wall is now known to belong to a different building that extends further to the northeast and east.[475] A small collection of black-on-red ceramics stylistically linked to the Early to early-Middle Umm an-Nar Period were recovered in association with this wall.[476] The clay surface that is it constructed upon continues to the west into the courtyard, where it is known to have been in use early in the Middle Umm an-Nar Period.[477] By extension, KA2 phase 1 can be dated to the beginning of the Middle Umm an-Nar.

In Structure KA2's second construction phase, we see the building take shape. A roughly rectangular outline is formed by walls 907, 908a, 909, and 910a. These walls are constructed of roughly hewn stones set into a mud mortar and rest on a level just above

[475] The remainder of this building was excavated for BAP by Smiti Nathan in 2015. The results of these excavations will be presented in her forthcoming dissertation (Nathan *forthcoming*).

[476] For stylistic comparison, see Cleuziou 1989a; Méry 2000:42, Fig. 48, no. 8; Thornton & Ghazal 2016:996-197, Fig. 9.4, no. i & Fig. 9.5, no. i.

[477] This surface is dated by radiocarbon analysis of charcoal from a hearth that is dug into it. See **Section 6.4.4** below for further discussion.

the preserved top of wall 912 (ca. 80-85 cm below datum; see Fig. 6.28).[478] Walls 907, 908a, and 910a are unusual at Khafaji for being only one stone in width (ca. 40-50 cm) and are preserved up to three courses in height (ca. 60-70 cm). The particularly narrow wall 907 is constructed running along the southern face of Structure KA1's phase 2 wall 905. This structural relationship tells us that KA1 phase 2 was already in existence when KA2 phase 2 was constructed and that the later wall 907 relied on the more substantial wall 905 for support. Despite their narrow composition, walls 908a and 910a form Structure KA2's exterior eastern and southern walls. This is especially clear in the

Fig. 6.28: Structure KA2 Phase 1 wall 912 running below Phase 2 wall 909.

[478] At points the foundation levels of these walls vary, cutting as low was 100 cm below datum and level with the earlier wall 912. Indeed, the northeastern end of wall 912 is cut by wall 908a (cf. Thornton 2016:38). However, the foundation levels of the KA2 phase 2 walls average some 10 cm above those of the phase 1 wall 912 and its associated surface. This sequence corresponds to Structure KA2's stratigraphic relationship with the courtyard to the east (see **Section 6.4.4**) and its architectural relationship wth Structure KA1 to the northwest (see **Section 6.4.1**).

eastern end of wall 910a, where two large stones (ca. 90x70x25 cm) mark the building's southeastern corner.

In contrast to other walls from this phase, walls 909 and 911 are composed of two rows of dovetailed stones, somewhat smaller than the stones used in the exterior walls, and are preserved two courses in height. These walls rest as the same level as walls 907, 908a, and 910a, which suggests that they are contemporary regardless of their differing compositions. The difference in construction styles may instead imply that walls 909 and 911 were conceived of as interior, rather than exterior, features. Wall 911 crosses the building's interior width, creating two small rooms (the northern room measuring 2.2x1.7 m and the southern measuring 2.4x2.2 m), and abuts the inner faces of walls 908a and 909. Although wall 909 marks Structure KA2's western extent,[479] this wall borders the courtyard (i.e., an 'interior' exterior space) between it and the tower rather than the outer edge of the tower foundation mound. The visual impact of the large stones in walls 908a and 910a likely created a more imposing aesthetic for the exterior walls than the smaller dovetailed stones used in the interior walls 909 and 911. No floor surface or distinctive artifacts were identified within Structure KA2 in association with its second phase.[480]

Structure KA2's third phase is found in a reconstruction event where the interior faces of the phase 2 walls 908a and 910a were reinforced with the addition of walls 908b and 910b. These phase 3 reinforcements are constructed of haphazardly assembled, small stones set against the inner face of the earlier walls. They are only a single stone course

[479] The southern end of wall 909's western face was damaged by tree root activity and pitting associated with KA2 phase 3.

[480] The few ceramics recovered from comparable levels within the building are from non-descriptive Umm an-Nar jars.

in height and rest at a level some 20-25 cm above that of the phase 2 walls (ca. 60-65 cm below datum). We can presume that during this occupational phase, the building's relatively narrow phase 2 exterior walls had begun to weaken. The fact that Khafaji's inhabitants invested the effort to bolster them with the new walls 908b and 910b attests to Structure KA2's significance at this point in the settlement's history. No interior floor surface or datable artifacts were found in association with KA2 phase 3. However, a poorly defined exterior surface was identified at roughly the same elevation in the neighboring courtyard (see **Section 6.4.4** below for further details). A gravel-filled pit from this surface cuts into the northern end of Structure KA2's phase 2 wall 909, giving the false impression of a doorway. Following this final third construction phase, Structure KA2 falls out of use and is gradually covered by accumulating wadi silt.

Structure KA2 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IVa	KA2-1	Wall 912; Structure KA1 built to the north	ca. 2500-2400 BCE
IVb	KA2-2	Construction of walls 908a, 909, 910a, and 911	ca. 2400-2200 BCE
IVc	KA2-3	(Re)construction of walls 907, 908b, 909, and 910b	ca. 2400-2200 BCE

Table 6.13: Structure KA2 architectural sequence.

In Structure KA2 we see an evolution in this area of Khafaji's tower mound. The earlier KA2 phase 1 building, which must have extended to the very edge of the mound's flat surface, is cleaned out and torn down before more than 10 cm of soil could accumulate atop the floor surface. This building was then replaced with the small

Structure KA2, with its two small rooms, set further to the west away from the edge of the tower mound. The large stones used to form the foundations of the exterior walls 908a and 910a would have exaggerated the appearance of building's scale to any outside observers. Due to the scarcity of interior contexts, Structure KA2's function remains uncertain. However, the slightness of wall 909, which separates it from the neighboring courtyard, implies that the building was very likely linked to the activities being carried out in that space (see **Section 6.4.4** below). Furthermore, the phase 3 reinforcement of Structure KA2's exterior wall suggests that the building (and its visually impressive facade) remained important throughout Khafaji's Middle Umm an-Nar occupation, even when the interior wall 909 was not repaired from its contemporary pit damage.

6.4.3 Structure KA4 (Trenches 46117-46118 & 46135-46136)

The third rectilinear building at Khafaji, Structure KA4, is located at the northern end of the tower foundation mound. This building was discovered in 2014 and was excavated under my supervision over the course of two field seasons, during which two complete rooms and the edge of a third were explored (see Fig. 6.29). Structure KA4's western extent remains concealed within the unexcavated Trenches 46116 and 46134. As we have already seen in Structures KA1 and KA2, Structure KA4 contained little portable material culture. Nevertheless, KA4 provides us with significant new structural details that inform our interpretation of Khafaji's Middle Umm an-Nar community and Bat's Umm an-Nar settlement tradition as a whole.

The first construction phase of Structure KA4 is known through two roughly parallel, east-west walls (915a and 916) and the fragmentary remains of three north-south

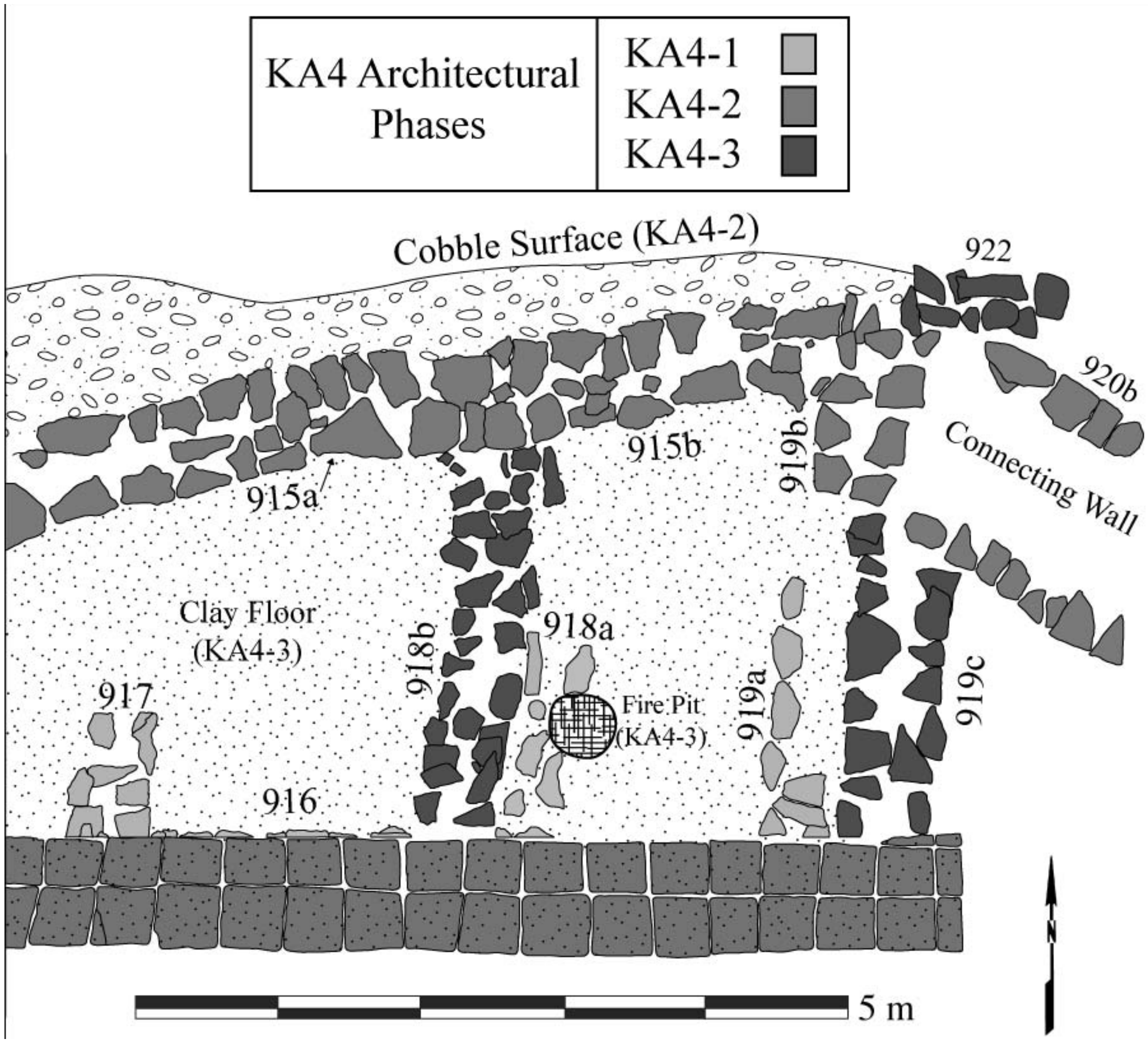

Fig. 6.29: Structure KA4 phased plan.

walls (917, 918a, and 919a) that delineate at least three interior rooms. These walls established a semi-integrated layout for Structure KA4 that was loosely maintained throughout its subsequent construction phases. The southern wall 916 is the most notable of this phase because it is the only example at Bat where an in situ mudbrick superstructure was identified in a settlement building.[481] Three courses of grayish-brown

[481] As noted below, the preserved mudbrick superstructure likely dates to Structure KA4's third construction phase.

brick[482] (35x35x7 cm) are visible resting on 3-4 courses of stone foundations. The 70 cm wide wall accommodates two rows of bricks with thin (ca. 1-2 cm) mortar joins between them. These bricks were only visible after a significant drying period – the first bricks were observed after a period of a week, while others were only visible a year after their initial exposure.[483] This difficulty in detecting mudbrick architecture in the dense clay that is the primary matrix of the Wadi Sharsah raises the possibility that many of Bat's other excavated structures also originally supported unidentified mudbrick superstructures.

The stone foundations of wall 916 are bonded with those of north-south walls 917, 918a, and 919a, all of which extend across roughly half the width of Structure KA4. These walls appear to have been largely deconstructed in one of KA4's later phases (2 or 3).[484] They are composed of unshaped, roughly dovetailed stones set into a mud mortar and measure 50-60 cm in width. Although fragmentary, we can see in these remains the now familiar semi-integrated floor plan that we have encountered in a number of Bat's Middle Umm an-Nar buildings.[485] Wall 919a formed Structure KA4's eastern edge, where it bordered the courtyard, while walls 917 and 918a created partially enclosed,

[482] The bricks are composed of a compact clay comparable in color and texture to the clay commonly found in Khafaji's surrounding matrix and contain sparse charcoal inclusions. The thin clay mortar between bricks is a slightly lighter shade of grey-brown than than bricks.

[483] Wall 916 is located just south of Trenches 46117 and 46118, both of which were excavated in 2014. The northern face of wall 916's stone foundations were identified in the trenches' southern profiles and, following a period of a week, sections of the mudbrick superstructure also became visible. I returned to this wall in 2015 and excavated the portions of Trenches 46136 and 46136 north of the tower. I was able to identify two rows of mudbrick resting atop the stone fondants and to further define the mudbrick courses in profile, where they had been exposed for the year prior.

[484] It is clear that these wall foundations originally stood at least 3 stone courses in height through the remaining bonded stones protruding from the northern face of wall 916. The robbing of their upper courses is especially clear in eastern half of wall 919a, which is almost completely stripped of its stones.

[485] Cf. Settlement Slope Structures SS1 and SS2; Khafaji Structure KA1; and az-Zebah Haus III.

interior spaces.[486] Structure KA4's northern extent is marked by the east-west wall 915a, which is largely obscured by the wider phase 2 wall 915b that rests directly on top of it. This wall runs at a slightly northeast-southwest angle that possibly takes advantage of the available, if irregular, space on the tower mound. The foundation level for KA4's phase 1 walls was not reached in excavation and no associated floor surface was identified. Nevertheless, we can tentatively assign KA4 phase 1 to the beginning of the Middle Umm an-Nar based on similarities in architectural style and elevation to the first phases of Structures KA1 and KA2.

Structure KA4's second phase is found in the reconstruction and enlargement of the building's exterior, as seen in the substantial walls 915b and 919b. These walls are constructed of two rows of dovetailed stones, visibly larger than the stones used in the phase 1 walls, set with a mud mortar. They are preserved only one course high, measure roughly 80 cm in width, and rest at a level 80-85 cm below datum. As mentioned above, wall 915b rests directly on top of and overhangs the foundations of the phase 1 wall 915a. Similar underlying foundations are not visible beneath wall 919b. Yet, this phase 2 wall neatly aligns with the surviving remains of the largely disassembled phase 1 wall 919a to the south. We can, therefore, safely assume that wall 919b represents a reconstruction of 919a that originally extended across the building's full width. Based on this relationship between walls 919a and 919b, we can also argue that the interior phase 1 walls 917 and 918a are likely to have been disassembled during this construction phase. While it is possible that they too may have been reconstructed, no trace of any such phase 2 interior

[486] Structure KA4's phase 1 eastern room measures 3.1x1.5 m, the central room measures 2.7x2.5 m, and the only partially exposed western room is 2.3 m in length.

walls was recovered. No interior floor was identified in association with the phase 2 walls. Outside the building, on the other hand, a surface of wadi cobbles and packed clay was found running against and level with wall 915b's foundations along its northern face. This exterior surface lines the front of Structure KA4 and may represent a street or pathway that skirts the outer edge of Khafaji's tower foundation mound.

The third phase of Structure KA4 is characterized by the slight expansion and realignment of the building's interior space. The foundations of KA4's phase 3 walls rest at a level only slightly above those of the phase 2 walls (ca. 80 cm below datum), which suggests a short interim between construction events. Walls 918b and 919c were added running parallel to and alongside (rather than atop) the now fragmentary phase 1 walls 918a and 919a. This altered Structure KA4's floor plan by both widening its eastern room from 1.5 m to 2.3 m and fully enclosing that room from the western portion of the building.[487] The interior wall 918b, constructed just west of the phase 1 wall 918a, is 50-60 cm wide and abuts both the southern face of wall 915b and the northern face of wall 916. The structural relationships of the 70 cm wide wall 919c, in contrast, are somewhat more complicated. Similar to the position of wall 918b, the new wall 919c was added just east of the deconstructed phase 1 wall 919a in order to widen Structure KA4's eastern room. However, only the southern half of the eastern phase 2 wall (919b) was dismantled for this enlargement. The northern half of wall 919b was left in place, presumably in order to preserve its structural interaction with the neighboring Connecting

[487] We have already noted similar renovation events fulling enclosing one room of a previously semi-integrated rectilinear floor plan in the nearby Structure KA1 as well as in Structures SS1 and SS2 at the Settlement Slope.

Wall (see **Section 6.4.4** below). Rather than dismantle the northwestern end of the substantial Connecting Wall, the KA4 phase 3 builders left this portion of the building(s) intact and sufficed with widening only the southern half of KA4's eastern room. Wall 919c thus abuts the join between wall 919b and the Connecting Wall in the north and the eastern end of wall 916 in the south.

While the combination of Structure KA4's various architectural components in phase 3 may appear somewhat disjointed, several of its characteristics demonstrate how its builders attempted to ameliorate the inconsistencies. A floor of packed clay was identified within the building level with its phase 3 wall foundations.[488] This clay surface would have concealed the vast majority of the deconstructed foundations from phase 1 walls 917, 918a, and 919a, although their southern-most stones still bonded with wall 916 would have remained visible where they protrude from the bottom of 916's northern face. KA4's phase 3 occupants took advantage of a nook in the remaining wall 918a foundations and used it as the base for a small fire pit, which was cut into the phase 3 floor of the building's eastern room. Also found on the floor surface were several sherds of a painted jar stylistically belonging to the Middle Umm an-Nar Period (see Fig. 6.30)[489] and a single large sherd of an Indus black slipped jar.[490] The most notable effort at integrating Structure KA4's various wall phases is seen in the phase 3 mudbrick. Walls 918b and 919c are constructed of unworked, dovetailed stones set in a mud mortar and

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[488] Because of the small difference in elevation between the KA4 phase 2 and phase 3 wall foundations, it is possible that the same floor surface was in use during both use periods. For the purposes of this dissertation, all materials found in association with this floor are assumed to date to KA4 phase 3.

[489] For stylistic parallels, see Cleuziou 1989a: Pl. 28, no. 4; Potts 1990b:51, Fig. 55, no. 3.

[490] For discussion on Indus black slipped jars at Bat and on the Oman Peninsula, see Blackman *et al.* 1989; Méry *et al*. 2017; Méry & Blackman 1999; Thornton & Ghazal 2016:204-206.

almost certainly supported a mudbrick superstructure.[491] Indeed, color variations in the profile of the wall 916 superstructure indicate that the mudbricks originally resting on walls 918b and 919c were bonded with those of 916. If true, this suggests that Structure KA4's phase 3 renovators used the reconstruction of the building's overall mudbrick superstructure to integrate its multiple wall phases (wall 916 from phase 1, walls 915b and 919b from phase 2, and walls 918b and 919c from phase 3) into a single, unified facade. The series of renovations to the KA4 wall foundations and regular maintenance events which must have been carried out in care of its mudbrick superstructure reflect the building's temporal cycles of occupation and reoccupation, possibly on an annual (for the mudbrick) or generational (for the stone foundations) basis (cf. Foxhall 2000; Stevanovic 2012).


Fig. 6.30: Middle Umm an-Nar jar fragment from Structure KA4 phase 3.

It is unclear how long Structure KA4 continued in use following its phase 3 alterations. Although no trace of a later floor surface was identified within the building, Umm an-Nar construction phases and activity surfaces are known from slightly higher

[491] A fragment of mudbrick with its maker's finger impressions still visible in its surface was recovered from the space immediately above wall 919c.

elevations than the KA4 phase 3 floor in the neighboring Structures KA1, KA2, and the Courtyard. It can be presumed that Structure KA4 would have continued in use for a similar duration to its neighbors. By the Late Umm an-Nar Period, Khafaji's entire northern complex appears to have been abandoned and was gradually covered in wadi clay and silt.

Structure KA4 Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IVa	KA4-1	Construction of walls 915a, 916, 917, 918a, and 919a	ca. 2500-2400 BCE
IVb	KA4-2	(Re)construction of wall 915b & 919b; Exterior cobble surface added	ca. 2400-2200 BCE
IVb	KA4-3	Deconstruction of walls 917, 918a, & 919a; (Re)construction of walls 916, 918b, & 919c	ca. 2500-2400 BCE
IVc	-	Continued occupation/abandonment (?)	ca. 2400-2200 BCE

Table 6.14: Structure KA4 architectural sequence.

In Structure KA4 we find a valuable example of both how Bat's Umm an-Nar settlement buildings were constructed above their foundations and how their multiple construction phases might have been integrated into a coherent whole. The KA4 phase 1 remains present us with a familiar, semi-integrated floor plan and wall foundation type. In phase 2, that floor plan is at least partially reconstructed and the earlier walls were used as a base for the new. Finally, in phase 3 KA4's eastern room is enlarged and entirely enclosed with the repositioning of walls 918b and 919c. The building's irregular shape and inconsistencies in its floor plan in later phases are influenced by the increasingly limited space available on the tower foundation mound. By using the flexible medium of mudbrick to integrate structural elements from all three phases, the Structure KA4's renovators were able to create a more fluid visual and functional built space than the stone foundations imply. Elsewhere at Khafaji and at Bat's other Umm an-Nar settlements we can expect a similar strategy of mudbrick to have been used to integrate building structural phases.

6.4.4 Connecting Wall & Courtyard (Trenches 46118-46119, 46136-46138, 46155-46156, & 46173-46174)

Perhaps the most revealing of the excavated areas at Khafaji is the courtyard space between the northern rectilinear buildings and the site's monumental tower (see Fig. 6.31). This space was first identified as an external activity area associated with Structures KA1 and KA2 by Thornton in 2009 (2016:34-39). Returning to the courtyard in 2014 and 2015, I was able to trace the space to the north and west, where it is enclosed by the eastern end of Structure KA4 and the large Connecting Wall that stretches between the northwestern corner of KA1 and the northeastern corner of KA4. The courtyard provides us with both a rich source of evidence for Khafaji's domestic activity and material culture and a valuable series of stratigraphic connections that link together the various buildings of the settlement's northern complex.

The earliest evidence of cultural activity identified within the courtyard space (KACC-1) can be tentatively dated to the Hafit Period, well before the construction of the Umm an-Nar buildings so far discussed. The tops of two walls (913 and 914) were discovered running roughly northeast-southwest from below the level of the tower foundations and disappear beneath Structure KA1 and the Connecting Wall. These walls

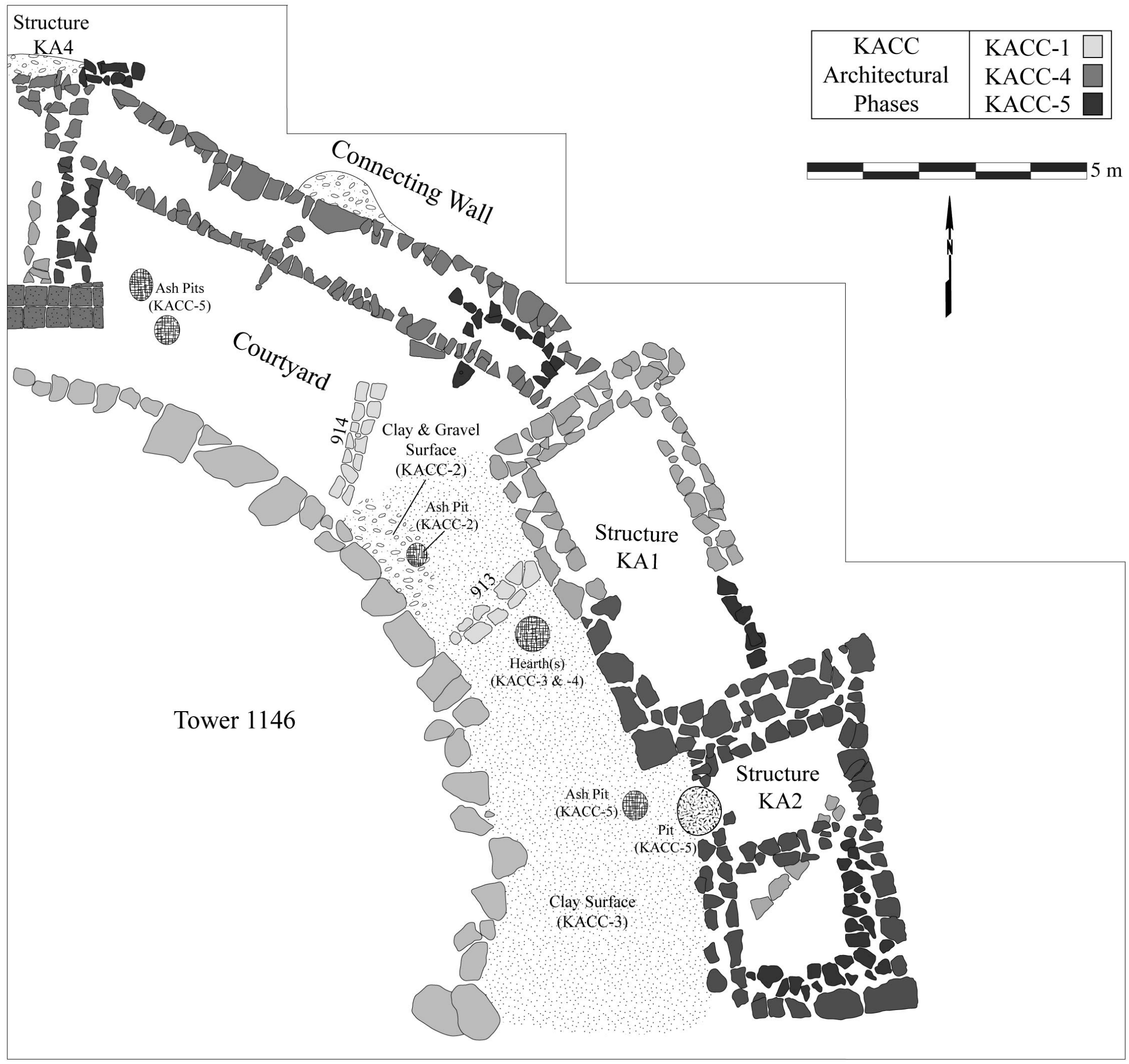

Fig. 6.31: Courtyard and Connecting Wall phased plan.

have foundations composed of two rows of roughly hewn stones set in a mud mortar, 50-60 cm wide, with a superstructure of grayish-brown mudbrick. Two courses of mudbrick were identified in profile, each 11 cm tall. As no vertical brick joins could be found in the profiles, it is possible that the individual bricks measured the walls' full width. Although the bottoms of walls 913 and 914 were not reached in excavation, they can be dated to the Hafit Period based on comparison with similar contexts found to the south. Walls of a comparable construction style were identified at the same elevation as

913 and 914 (ca. 135 cm below datum) in a deep sounding excavated through the center of Khafaji's tower (Trench A; see Thornton 2016:39-46). A charcoal sample, found within a room formed by these walls in Trench A, provide a Hafit Period radiocarbon date range of 3040-2890 cal. BC. The discovery of walls 913 and 914 immediately beneath the Umm an-Nar courtyard, 15 m northeast of the previously excavated Hafit contexts in Trench A, suggests that Khafaji's Umm an-Nar tower and its surrounding settlement are founded on a substantial Hafit site.[492]

Little clear evidence of Early Umm an-Nar activity has yet been identified in the area of the courtyard (KACC-2). The construction of Khafaji's tower monument can be dated to this period through a C14 sample (2750-2480 cal. BC, 2-σ) taken from a layer of mudbrick that was used to fill in the underlying Hafit architecture (Thornton 2016:39, 310).[493] The tower's foundations, composed of a course of extremely large plinth stones that rest on the leveled Hafit contexts, border the southwestern edge of the courtyard at 115-125 cm below datum.[494] Roughly level with and partially running over these plinth stones was a layer of small wadi pebbles, which formed a surface that can be considered

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[492] It is probable that the Hafit site below the tower was already situated on or had formed a mound in the wadi valley. Excavation to the north and south of Khafaji's tower has shown that the Bronze Age contexts slope dramatically downhill at a distance of roughly 7-8 m from the tower (cf. Desruelles *et al.* 2016:23, Fig. 2.9; Nathan *forthcoming*; Thornton 2016:27, Fig. 3.2).

[493] The deep sounding (Trench A) excavated through the tower's center exposed a level of Hafit Period walling that had been subsequently filled with mudbricks of a notably lighter grey-brown than those used in the Haift architecture. These lighter bricks appear to have been used to fill the earlier Hafit layer in order to create a flat foundation for the tower monument. Charcoal from these bricks (a common form of temper in Bat's Umm an-Nar mudbricks; cf. Cable 2016:60-75; Frifelt 2002a; Thornton 2016:34) provided a C14 date range of 2750-2480 cal. BC. The Early Umm an-Nar construction date for Khafaji's monumental contexts is reinforced by a C14 date (2700-2570 cal. BC, 2-σ) associated with the monumental platform (Structure KA3) and its revetment wall. See **Appendix A** for a full list and description of relevant C14 dates.

[494] The Khafaji tower plinth stones appear to have gradually shifted out from their original positions beneath the tower walls and project ca. 80 cm into the courtyard (Thornton 2016:39).

contemporary with the Early Umm an-Nar tower. An ash-filled fire pit and a small lump of copper were found on this surface, just northeast of the tower plinth. While limited in scope, these remains attest to Early Umm an-Nar cultural activity being carried out just outside Khafaji's tower, in the area that would later become the courtyard.

In the courtyard's third occupational phase (KACC-3) we begin to find the dense accumulation of domestic-style debris that first drew excavators' attention in 2009. A surface of packed clay was found at an elevation roughly 95-100 cm below datum, level with KA1 phase 1 and KA2 phase 1. This surface featured a stone-lined hearth, 60 cm in diameter, just southwest of Structure KA1. A C14 sample from this hearth yielded a Middle Umm an-Nar date range of 2460-2200 cal. BC (2-σ). Resting on this surface was 10 cm of grey-brown, loamy clay containing ash, charcoal, and ample quantities of Middle Umm an-Nar pottery – some painted but most unpainted, utilitarian wares. Such an accumulation is typical of exterior food or craft preparation contexts, where rubbish from the repeated activities gradually builds up on the original ground surface (LaMotta & Schiffer 1999; cf. Weisgerber 1980; 1981). Given the location of the hearth, we can consider the activities carried out in this outdoor space as connected to Structure KA1 in its first phase.

Although no clear surface was identified, we can understand the courtyard's fourth occupational phase (KACC-4) as beginning roughly 15-20 cm above the phase 3 floor (ca. 80-85 cm below datum). This assumption is supported by the presence of a second hearth and numerous construction events in the surrounding buildings all situated at the same elevation. The courtyard's phase 4 equates to Structure KA1's phase 2, KA2's phase 2, and KA4's phases 2 and 3. The new hearth, located next to Structure KA1 and just above the first, provides a C14 date range of 2480-2240 cal. BC (2-σ). The nearly identical dates between the KACC phase 3 and phase 4 hearths (2460-2200 cal. BC, 2-σ, for the phase 3 hearth and 2480-2240 cal. BC, 2-σ, for the phase 4 hearth) indicate that the courtyard was an area of intense activity, where sediment and cultural materials accumulated quickly. Resting atop the courtyard's unidentified phase 4 surface was a further 20 cm of accumulated loamy grey-brown clay and ash containing a large quantity of ceramics. Stylistically, this ceramic assemblage is comparable to that from the previous phase with the addition of several sherds from imported Indus vessels (black-slipped jar fragments and a red-on-buff slip sherd; cf. Cleuziou & Mary 2002; Thornton & Ghazal 2016:204-208).

A defining characteristic of the courtyard's fourth phase is the addition of the large Connecting Wall between Structures KA1 and KA4 (see Fig. 6.32). This unusually wide wall feature is composed of two parallel rows of stone (walls 920a and 920b) set 80 cm apart and faced on the exterior to the northeast and southwest. The space between the stone facings was filled with packed mud and stone rubble of various sizes. Taken together, the stone facings and rubble core form a wall 1.5 m wide. The Connecting Wall's outer facings are preserved three stone courses in height and their foundations rest at an elevation of roughly 85 cm below datum. In the northwest, the Connecting Wall abuts and is level with Structure KA4's phase 2 wall 919b. In the southeast, it abuts the northwestern face of Structure KA1's phase 1 wall 901, the foundations of which rest some 10 cm lower than those of the Connecting Wall. While no definitive superstructure

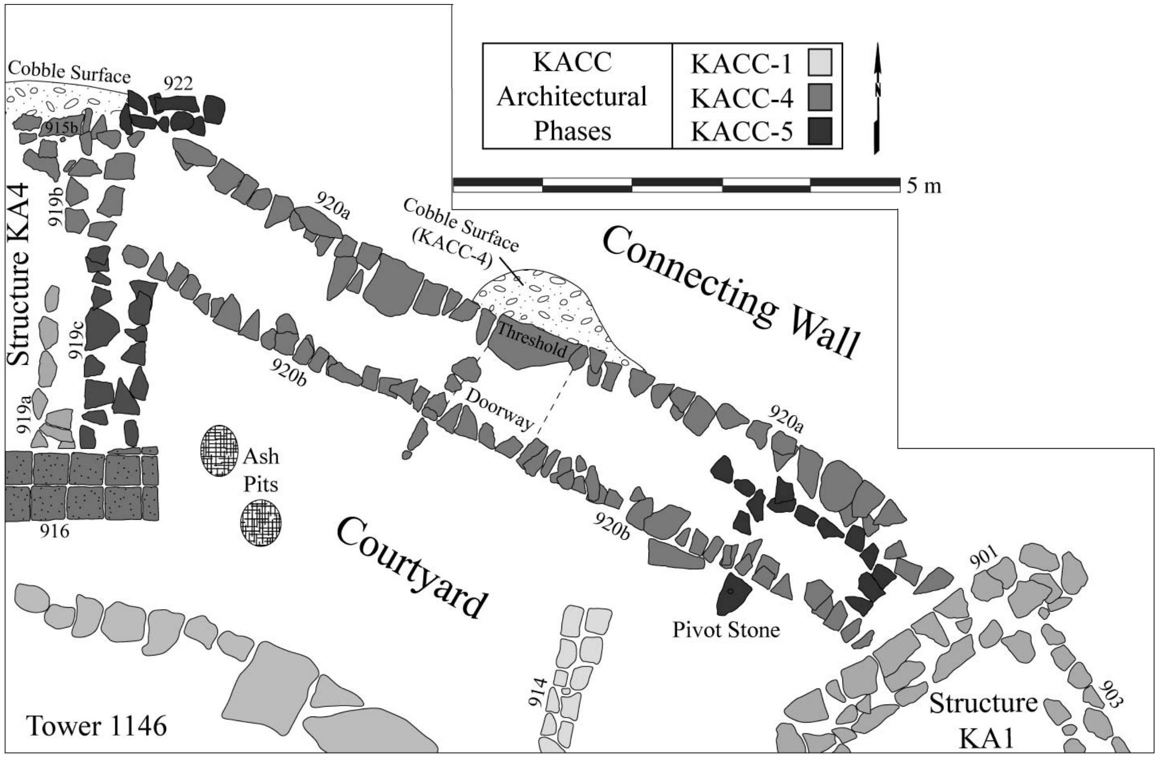

Fig. 6.32: Connecting Wall phased plan.

was identified on the Connecting Wall, we can posit that mudbricks formed some or all of it because fragments of poorly preserved brick were found in the clay above the wall foundations.

The Connecting Wall can be understood as a large-scale effort by Khafaji's Middle Umm an-Nar community to define and enclose the courtyard space. Prior to its construction, the wide space between Structures KA1 and KA4 would have been clearly visible and accessible to any on the northeastern side of the tower mound. With the addition of the Connecting Wall, both visual and physical access to the courtyard were restricted by the substantial barrier. The point of entry through the Connecting Wall into the courtyard is indicated by a wide, flat threshold stone situated in roughly the center of the wall's northern face. The space southwest of this stone, within the body of the

Connecting Wall, is lined on one side by a row of upright stones and paved with a surface of small, flat stones. Resting on these paving stones was a small collection of Umm an-Nar pottery.[495] Abutting the northeastern (exterior) edge of the threshold stone is a small patch of a cobbled surface, comparable to that found along the northern face of Structure KA4's phase 2 wall 915b. These two sections of exterior cobble surface indicate that during this period in Khafaji's history, the outer edge of the tower foundation mound may have been paved with a cobble street.

The fifth and final occupational phase found in the courtyard (KACC-5) is situated at a level roughly 65 cm below datum. Similar to phase 4, no clear floor was identified at this elevation in the courtyard. However, we can be confident that an Umm an-Nar surface once existed at this level because here we also find several features and construction events in the surrounding buildings. Structure KA1's phase 3 and Structure KA2's phase 3 are both situated roughly 65 cm below datum, as are a number of alterations made to the Connecting Wall. At or just prior to this phase, the Connecting Wall's eastern end suffered a partial collapse.[496] Three internal buttressing 'walls' were then added within the wide feature, running along the inner face of wall 920a and perpendicular between walls 920a and 920b, in order to give the aging facing stones added support. The Connecting Wall's northwestern corner also appears to have needed reinforcement during this phase. The small wall 922 was added across the point where the Connecting Wall meets the northeastern corner of Structure KA4. This small wall is

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[495] This doorway was the only location between the Connecting Wall's outer facings where pottery was discovered.

[496] The eastern end of wall 920a was particularly damaged. Excavations in this area revealed several stones slumped downhill to the northeast and evidence of a reconstruction attempt on top of them.

composed of two rows of unworked and haphazardly assembled stones that are preserved three courses in height. Additionally, at some point late in its use history (after 10 cm of clay accumulated atop the threshold stone), the Connecting Wall's doorway was blocked with loose stone and rubble. It remains unclear where or how the courtyard was entered following this structural change. However, a pivot stone found in the courtyard next to the Connecting Wall's southeastern end may indicate where the new entrance was located.

Within the courtyard, phase 5 is characterized by the addition of several pit features at its northwestern and southeastern ends. In the southeast, we see Structure KA2's phase 2 wall 909 cut by a rubble-filled pit. A short distance away, a small, ashy pit was added in the space between KA2 and the tower. Further to the northwest, another two ash-filled pits were uncovered just east of Structure KA4. The loamy, grey-brown clay resting atop the unidentified phase 5 surface contained large numbers of Middle Umm an-Nar ceramics stylistically similar to the previous two phases. This third consecutive layer of domestic-style refuse in the courtyard reinforces its importance as an intensely used, semiprivate outdoor activity area.

There is no further evidence that the courtyard or Connecting Wall were used past the Middle Umm an-Nar Period. Just as the buildings around them, both were gradually covered by the accumulating clay of the Wadi Sharsah.

Courtyard & Connecting Wall Architectural Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
II	KACC-1	Walls 913 and 914 beneath courtyard	ca. 3000–2900 BCE
III	KACC-2	Tower plinth and pebble surface	ca. 2800-2500 BCE
IVa	KACC-3	First courtyard surface	ca. 2500-2400 BCE
IVb	KACC-4	Second courtyard surface; Construction of Connecting Wall	ca. 2500-2400 BCE
IVc	KACC-5	Third courtyard surface; Filling of Connecting Wall doorway	ca. 2400-2200 BCE

Table 6.15: Courtyard and Connecting Wall architectural sequence.

The use-life of the courtyard and Connecting Wall are particularly revealing for how we should understand the occupational history of Khafaji, and its northern rectilinear complex in particular. In KACC-1 we see evidence that Khafaji was already a mounded site with permanent architecture in the Hafit Period. In the subsequent Early Umm an-Nar KACC-2, the tower and foundation mound were constructed atop the earlier Hafit site. Although we only have limited exposures of Khafaji's Early Umm an-Nar levels, evidence from beneath the courtyard indicates that the area was already a being used as outdoor settlement space.

During the Middle Umm an-Nar (KACC phases 3-5) the courtyard takes shape as a significant outdoor activity area associated with the surrounding Structures KA1, KA2, KA4, and eventually the Connecting Wall. Its use-life is characterized by a substantial accumulation of material culture, especially ceramics, suggesting domestic activities such as food preparation were being carried out. The three phases of activity within the courtyard, which are visible through the elevations of pits, hearths, and one clear surface (phase 3), also correspond to construction episodes in the surrounding structures.[497] It thus appears that the courtyard and the buildings bordering it all experienced similar cycles of use and development. The importance of the courtyard, and the activities that were carried out inside it, are further emphasized by the construction of the Connecting Wall in KACC-4. With the addition of this large feature, the courtyard was transformed from a visually and physically accessible space to an enclosed space with limited access. While the precise functions the courtyard served for Khafaji's Middle Umm an-Nar community remain uncertain, I suggest that it socially linked the users or residents of the surrounding Structures KA1, KA2, and KA4 through the shared, semi-private, outdoor domestic space.

6.4.5 Southern Activity Area (Trenches 46227 & 46228)

The last area at Khafaji with evidence of possible domestic activity was found in a series of use surfaces located on the southeastern portion of the tower foundation mound. These contexts are situated in the unstructured space to the south of the site's monumental platform (Structure KA3) and its abutting features (see Fig. 6.33). The area was excavated in 2014 under my supervision with the objective of uncovering evidence that the settlement contexts known from the northern half of the tower mound continued in the south. Although nothing that can be considered settlement architecture was discovered in this area, the presence of domestic-type activity indicates that settlement contexts were not restricted to the northern half of the tower foundation mound.

[497] For details on Khafaji's general settlement chronology, see **Section 6.4.6** below.

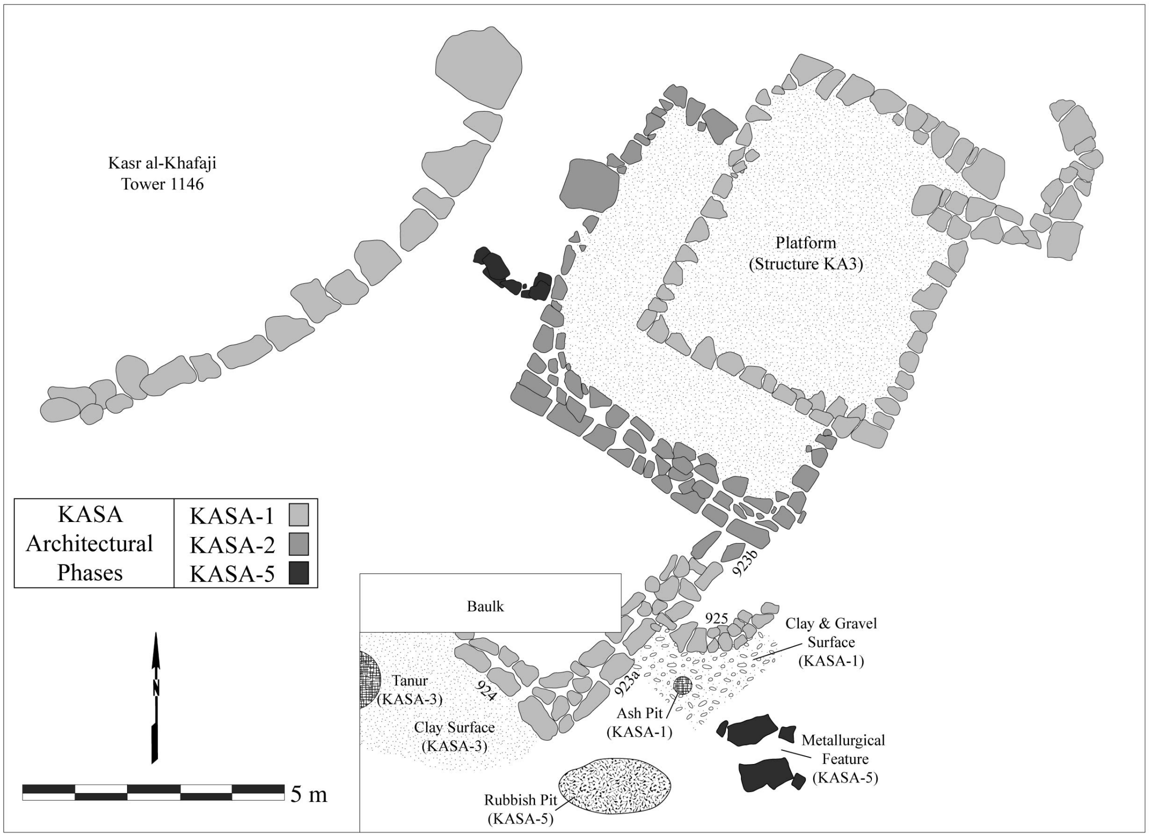

Fig. 6.33: Khafaji Southern Activity Area phased plan.

The earliest level reached in this Southern Activity Area (KASA-1) consists of a clay and gravel surface roughly 130-140 cm below datum,[498] onto which the large walls 923a, 924, and the curving wall 925 were constructed.[499] These architectural features are associated with the monumental platform (Structure KA3) to the north and are discussed in greater detail elsewhere (see **Section 4.3.1**). The gravel surface can be dated to the

[498] Contexts on the southern half of Khafaji's tower foundation mound are located at elevations some 10-20 cm lower than their corresponding contemporary contexts on the northern half of the mound. These variations may be caused by differing levels of activity and debris accumulation in the two areas.

[499] This KASA-1 surface is situated at a slightly higher elevation (130 cm below datum) in the west, where wall 924 approaches the tower, than in the east (140 cm below datum) below walls 923a and 925. The eastern surface was only reached in a small sounding located at the juncture of walls 923a and 925, which was excavated in order to assess the relationship of the two walls and to identify their foundation levels. It was found that, although wall 925 abuts the southeastern face of wall 923a, both are founded on the clay and gravel surface. This difference in elevation is likely due to the sloping of the tower foundation mound slightly downhill at greater distances from the tower.

Early Umm an-Nar Period by a C14 sample taken from a small, ash-filled pit just south of wall 925, which yielded a date range of 2700-2570 cal. BC (2-σ). With the exception of the ash pit, no clear in situ contexts were identified in association with this surface. Nevertheless, a small collection of fine, painted ceramics stylistically linked to the Early or early-Middle Umm an-Nar[500] and a fragmentary copper blade were (see Fig. 6.34) discovered at this level. These finds both reinforce the context's early date and attest to a degree of activity in the unbuilt space.

A second phase of Early Umm an-Nar construction (KASA-2) is apparent in the monumental architecture just north of the phase 1 clay and gravel surface. The square platform (Structure KA3) is expanded to the south and west and the two stones of wall 923b were added to bridge the gap between the southern end of this new platform extension and the surviving northern end of wall 923a. No corresponding occupational contexts were identified in the area to the south. However, we can tentatively expect that this area continued to be utilized in this phase because of the consistent activity evidenced here during both the preceding and

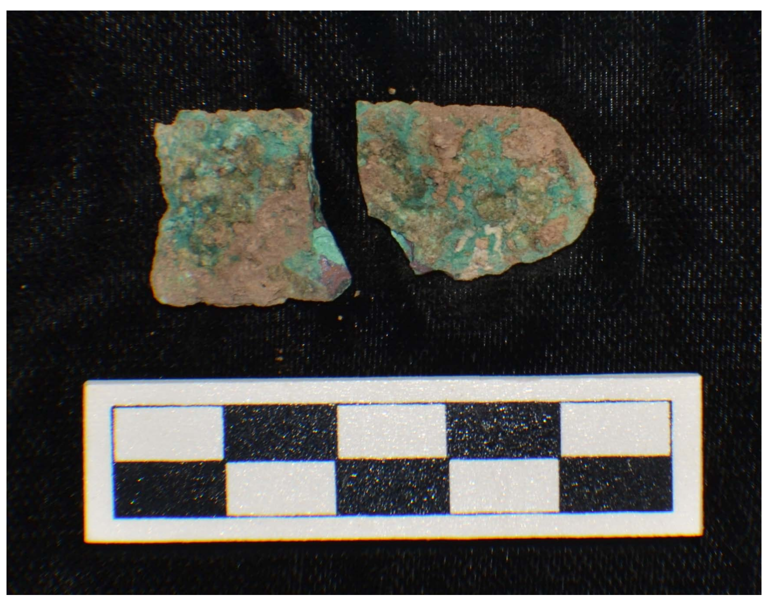

Fig. 6.34: Fragmentary copper blade found in KASA-1.

500 For comparanda see Cleuziou 1989a: Pl. 23, no. 2; Méry 2000:82, Fig. 48, no. 4; Thornton & Ghazal 2016:197-1987, Fig. 9.4, nos. I & R; Fig. 9.5, nos. G, H, I, & J.

subsequent periods.

The Southern Area's third occupational phase (KASA-3) provides the clearest evidence of domestic activity in this sequence. A packed clay floor was identified roughly 115 cm below datum to the southwest of and running against the face of wall 924. Level with this surface and extending west beyond the limits of excavation was a lined tanur, or clay oven, capped with a small mound of cobbles and containing large quantities of charcoal.[501] A C14 sample from the tanur provides a radiocarbon date range of 2470-2310 cal. BC (2-σ), which places this context roughly contemporary with the first or second phases of activity in the courtyard to the north (KACC-3 or KACC-4). A collection of utilitarian Umm an-Nar pottery was also found on and at the same elevation as the surface throughout this area. Based on this collective evidence, it is likely that in KASA-3 the Southern Area served as a stage for food preparation.

A fourth occupational level (KASA-4) may have existed roughly 20 cm above the KASA-3 clay surface (ca. 95 cm below datum). While no clear floor or activity level was identified at this level, a quantity of extremely fragmentary Middle Umm an-Nar pottery (see Fig. 6.35) and a small collection of shell artifacts (two beads and an intact shell of a similar variety to those the beads were made from; see Fig. 6.36) were found at the same elevation. Such a high concentration of artifacts at one level suggests that a use surface of some kind once existed. However, without a clear context it is difficult to interpret the implications of these finds.

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[501] The tanur extends into the western section of Trench 46227 and was not fully excavated.

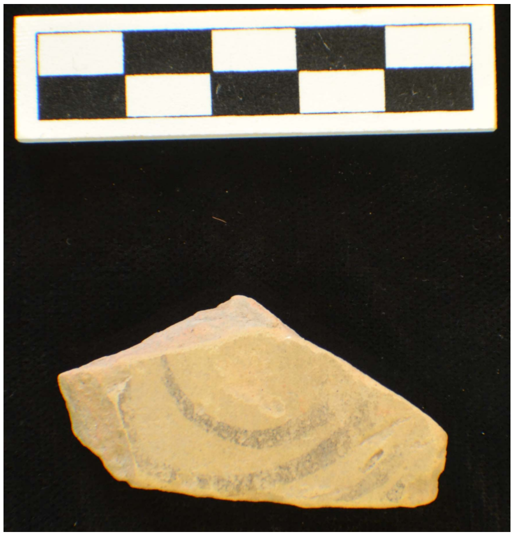

Fig. 6.35: Middle Umm an-Nar sherd found in KASA-3.

Fig. 6.36: One of two shell beads found in KASA-3.

The Southern Area's fifth occupational phase (KASA-5) was situated at roughly 70 cm below datum. Similar to the previous phase, no surface was identified at this elevation. However, two features – a rubbish pit and a large stone feature of unclear function – mark the level as supporting a Middle Umm an-Nar activity area(s). When excavated, the irregularly shaped pit (ca. 2.3x1.1 m) was found to contain significant quantities of pottery, greenish-gray silt, and wadi cobbles. While the pottery consists primarily of unremarkable, domestic-ware jar sherds, the few decorated examples can be stylistically dated to the Middle Umm an-Nar Period.[502] Such an assemblage in combination with the greenish-gray silt indicates that this pit represents a rubbish disposal location. The small stone feature, located some 4 m to the west of the pit, is composed of four unshaped limestones arranged to form a narrow space or channel between then. No trace of burning or clear evidence of use was found within this feature.

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[502] For comparanda see Méry 2000:128, Fig. 75, nos. 7 & 8; Thornton & Ghazal 2016:189, Fig. 9.6, no. H & N.

Nevertheless, a metallurgical function is suggested by two lumps of slag, a piece copper, and a complete copper pin found in the general vicinity.

The final occupational phase identified in the Southern Area is known only through a large (2+ m diameter), ashy pit that extended to the west beyond the limits of excavation. This pit was situated roughly 50 cm below datum and can be dated to the Early Islamic era through ceramics found at a comparable elevation in the surrounding area. The pit contained substantial quantities of ash and charcoal but no cultural material. However, several pieces of ceramic slag were recovered from the general vicinity and may indicate that the pit was used as a makeshift kiln. Further evidence of the Early Islamic occupation at Khafaji is well documented by Thornton from within and to the east of the tower monument (Thornton 2016:28-32).

Southern Activity Area Sequence & Use-Life

Site Phase	Building Phase	Description	Approximate Date
IIIa	KASA-1	Construction of Platform and walls 923a, 924, and 925; Fire pit	ca. 2800-2500 BCE
IIIb	KASA-2	Addition of Platform Extension and wall 923b	ca. 2800-2500 BCE
IVa	KASA-3	Use phase of oven and clay surface; Possible second surface	ca. 2500-2400 BCE
IVb	KASA-4	Possible use surface	ca. 2500-2400 BCE
IVc	KASA-5	Large trash pit	ca. 2400-2200 BCE
V	-	Late Umm an-Nar abandonment	ca. 2200-2000 BCE
VI-IX	-	Wadi Sûq/Late Bronze Age/Iron Age hiatus	ca. 2000 BCE - 0 CE
Xa	KASA-6	Early Islamic pit	ca. 0-1500 CE

Table 6.16: Occupational sequence of Khafaji's southern activity areas.

Although the use-life of the contexts in Khafaji's Southern Activity Area cannot be framed by their surrounding architecture in the same way as the contexts at the northern end of the tower mound, it is still possible to outline a long sequence of occupation that supports activity patterns established in the north. While ephemeral, the Early Umm an-Nar clay and gravel surface and small ashy pit in KASA-1 mirror those found beneath the northern Courtyard in KACC-2. Together, these contexts suggest that the Early Umm an-Nar occupation on Khafaji's tower mound may have been less intensive than that of the Middle Umm an-Nar. Stepping forward in time, the three Middle Umm an-Nar phases (KASA-3, -4, and -5) all give the impression that the southern portion of the tower foundation mound served as an open, multifunctional (e.g., food preparation in KASA-3; rubbish disposal and metallurgical craft production in KASA-5) activity area. While it is probable that these activities were in some way related to the neighboring monumental tower and/or platform, their domestic character also resonates with the contexts found in the Middle Umm an-Nar Courtyard to the north. Additionally, the large pit in KASA-6 shows that the Early Islamic presence at Khafaji was not limited to the tower but also engaged in its surroundings.

6.4.6 Al-Khafaji Occupational Sequence and Umm an-Nar Houses and Households

Using the use-lives and descriptions of Khafaji's settlement structures detailed above, we are now in a position to consider the site's occupational sequence, houses, and households. The contextual contrast of Khafaji's settlement remains with those at the Settlement Slope, both in terms of their position on the Bat landscape and relationship to the site's monumental tower, provide a valuable alternative perspective on Bat's Umm an-Nar house and household traditions. In this sub-section, I integrate the use-lives of Khafaji's settlement buildings and activity areas discussed above with the overall site chronology. Using patterns in the structural forms, layouts, and activity area behaviors, I propose interpretations of building function and the composition of the household group(s) that engaged with the space. Khafaji's Umm an-Nar community, as represented by the occupation on the tower foundation mound, is described here as one characterized by increasingly private domestic activity that is closely associated with both the image and the reality of monumental space. These observations, taken in comparison with the conclusions already drawn from the Settlement Slope's occupational contexts, move toward refining our understanding of Bat's Umm an-Nar society.

In order to contextualize Khafaji's settlement remains with those of the Settlement Slope, it is first necessary to establish a broad chronology applicable to both sites. In his recent analysis of Khafaji's monumental tower, Thornton constructed a chronology for the site that is based primarily on his research within and beneath the tower (2016:46-47).[503] By combining the use-lives of the settlement's architecture and activity areas with Thornton's chronology, I was able to assemble an occupational sequence that chronologically links contexts from all excavated parts of Khafaji's tower foundation mound. Additionally, by sequencing this chronology with the one developed above for the Settlement Slope (see Table 6.1), it is possible to consider roughly contemporary

[503] An exception to this is the settlement contexts that Thornton unexpectedly encountered to the northeast of the tower. Two C14 samples collected from hearths in what was later determined to be the Courtyard anchor the Middle Umm an-Nar component of his chronology (see **Section 6.4.4** below for further discussion).

construction and occupational phases from both settlements. This sequence illustrates Khafaji's importance as an occupational center on the Wadi al-Sharsah plain from the Hafit through the Middle Umm an-Nar periods. BAP's excavations at Khafaji have thus far achieved broad exposures of only the Middle and, in some areas, Early Umm an-Nar contexts. However, the traces of Hafit architecture identified within the tower foundation mound indicate that this site may also contain a substantial Hafit settlement that warrants further exploration in the years to come.[504]

al-Khafaji Occupational Sequence

Bat Site Phase	Structure KA1	Structure KA2	Structure KA4	Connecting Wall & Courtyard	Off-Mound Occupation	Date	Period
I	-	-	-	-	-	ca. 5000-4400 BCE	Middle Neolithic
IIa	-	-	-	-	-	ca. 3200-3000 BCE	Early Hafit
IIb	-	-	-	KACC-1	-	ca. 3000–2900 BCE	Hafit
IIIa	-	-	-	KACC-2	KASA-1	ca. 2800-2500 BCE	Early Umm an-Nar
IIIb	-	-	-	KACC-2	KASA-2	ca. 2800-2500 BCE	Early Umm an-Nar
IVa	KA1-1	KA2-1	KA4-1	KACC-3	KASA-3	ca. 2500-2400 BCE	Middle Umm an-Nar
IVb	KA1-2	KA2-2	KA4-2 KA4-3	KACC-4	KASA-4	ca. 2400-2200 BCE	Middle Umm an-Nar

[504] For more on Khafaji's Hafit Period remains, see Thornton 2016:39-46 and Nathan *forthcoming*.

Bat Site Phase	Structure KA1	Structure KA2	Structure KA4	Connecting Wall & Courtyard	Off-Mound Occupation	Date	Period
IVc	KA1-3	KA2-3	-	KACC-5	KASA-5	ca. 2400-2200 BCE	Middle Umm an-Nar
V	-	-	-	-	-	ca. 2200-2000 BCE	Late Umm an-Nar
VI-VII	-	-	-	-	-	ca. 2000-1600 BCE	Wadi Sûq
VIII	-	-	-	-	-	ca. 1600-1300 BCE	Late Bronze Age
IX	Pitting	-	-	-	-	ca. 1300-600 BCE	Iron Age
Xa	-	-	-	-	KASA-6	ca. 700-1500 CE	Early Islamic
Xb	-	-	-	-	-	ca. 1800-1900 CE	Late Islamic
XI	-	-	-	-	-	ca. 1900 CE - Present	Natural Accumulation

Table 6.17: al-Khafaji overall occupational sequence and chronology.

Prior to the construction of the Umm an-Nar monumental tower (1146), Khafaji was the site of a Hafit Period (Bat Phase IIb) occupation characterized by narrow mudbrick walls resting on stone foundations. Exposures of Bat Phase IIb contexts are limited in size and number, namely the soundings in the Courtyard (KACC-1) and Trench A that cut through the center of the tower (cf. Thornton 2016:39-46; see also **Section 6.4.4** above). While little can be said regarding the social nature of this occupation, several deep soundings excavated both within the tower and at distances greater than 10 m from the monument indicate that by the Hafit Period the site was already situated on a natural hill or man-made mound that rose above the surrounding wadi valley floor (cf. Desruelles *et al.* 2016:23, Fig. 2.9; Nathan *forthcoming*; Thornton 2016:27, Fig. 3.2; see also **Sections 4.3.1** and **6.4.4**). The end of the Bat Phase IIb Hafit occupation is marked by the filling in of the rectilinear architecture with a mass of light brown mudbricks and rubble that effectively leveled the settlement.

In the Early Umm an-Nar (Bat Phases IIIa and IIIb) we see a layer of sterile clay added over the leveled Hafit occupation. This clean surface formed the base layer of Khafaji's Umm an-Nar foundation mound, on which the site's monumental stone tower and platform (Structure KA3) were constructed. Evidence of settlement activity dating to the Early Umm an-Nar Period is limited, despite the relatively broad exposures of Phase IIIb in the Southern Activity Area. The Bat Phase III(a/b) contexts identified in both the northern and southern ends of the tower foundation mound are characterized by a clay and gravel surface. Two small fire pits were identified level with this surface in the Courtyard and in the Southern Activity Area (KACC-2 and KASA-1). However, the lack of evidence for associated activities renders any interpretation of these features and their socioeconomic implications extremely tentative.[505] While further excavation may significantly alter this impression, based on the currently available information Khafaji's Early Umm an-Nar phases do not appear to have supported more than an ephemeral occupation on the tower mound.

[505] For instance, the lump of copper found on the gravel surface near the KACC-2 fire pit might be used to posit a metallurgical function for the pit, which would parallel similar metallurgical activity taking place around the Settlement Slope tower during the Early Umm an-Nar Period.

The evidence of an occupational presence on the Khafaji mound increases dramatically in the Middle Umm an-Nar Period (Bat Phases IVa-c), when we see the construction of Structures KA1, KA2, KA4, and the Connecting Wall as well as the development of activity areas in the Courtyard and Southern Area. In contrast with the Settlement Slope, Khafaji's Early Umm an-Nar tower continues to be maintained and added to throughout this period.[506] The simultaneous use of the tower and increasing settlement activity in the space around it strongly suggest that the two broad contexts (i.e., monumental and occupational) and their social functions were in some way interconnected.

Looking specifically at Khafaji's settlement architecture, the buildings on the tower foundation mound do not form as uniform an architectural assemblage as their contemporary counterparts at the Settlement Slope (Structures SS1, SS2, and SS4+). Nevertheless, we do see a similar set of construction methods and, to some extent, building layouts. As in the Settlement Slope's Middle Umm an-Nar building phases, Khafaji's Phase IVa-c walls are, with few exceptions, constructed of two rows of dovetailed limestone blocks set into a mud mortar and are typically preserved 3-4 stone courses in height.[507] The mudbrick superstructure identified atop Structure KA4's foundations further clarifies our conceptualization of this building style, which I propose can be considered typical of Bat's Middle Umm an-Nar domestic (i.e., house)

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[506] Most notably, the tower's interior cross walls appear to have been a Middle Umm an-Nar addition to the monument (Thornton 2016:46).

[507] Exceptions to this include the KA Phase IVb walls 907, 908a, and 910a walls in Structure KA2, which are a single stone in width, and the unusual Connecting Wall (KA Phase IVb-c, walls 920a and 920b). It is, perhaps, significant that neither of these structures fall into the semi-integrated 'house' building type.

architecture.[508] Similarly, while Structures KA1 and KA4 do not precisely compare with the regular dimensions of the semi-integrated house buildings found on the Settlement Slope, both do feature a semi-integrated interior floor plan and are associated with domestic-type activity. The slightly irregular building shapes found in these examples and Structure KA2 can be explained by the limited space available atop the circular foundation mound (see below for further discussion). I suggest that Structures KA1 and KA4 can be considered the same house building type as the semi-integrated domestic structures on the Settlement Slope,[509] while Structure KA2 falls into another category that has yet to be defined.[510]

Estimates of the sizes of the household groups that could have been supported by the house structures on Khafaji's foundation mound are somewhat hampered by the extent of the excavated area and the fragmentary state of the preserved buildings. Nevertheless, the architectural remains that do survive suggest that the household groups occupying the mound were quite small (one or two individuals; see Tables 6.18 & 6.19). If we increase the population estimates by one or even two individuals to account for the missing portions of both house structures, the household groups would still be composed of only three or four members. This is only just large enough for a nuclear family

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[508] While this construction style is found in some buildings that do not follow the semi-integrated floor plan, it is used consistently in Middle Umm an-Nar semi-integrated structures.

[509] This interpretation is not meant to imply that all Umm an-Nar houses at Bat or elsewhere necessarily follow a semi-integrated floor plan. Based on the excavated Umm an-Nar buildings at the Settlement Slope and al-Khafaji, this particular floor plan seems to have been commonly used for structures that supported domestic activity.

[510] Only the second and third phases of Structure KA2 (KA Phases IVb and IVc; KA2-2 & KA2-3) are considered in this summary. Not enough of KA2's first phase is known for an analysis of its layout to be reliable. Additionally, the complete lack of interior contexts within KA2 phases 2 and 3 make any interpretation of its function unreliable.

(Watson 1979:132). Although the population estimates for the contemporary households of the Settlement Slope are slightly larger than those at Khafaji (between three and six individuals in SS1 and between eight and 13 individuals in SS2), this difference is more likely the result of the physical location of Khafaji's known house structures than of a significant difference in social composition. The limited space on Khafaji's foundation mound either restricted the possible size of the resident households or required household members to live in closer quarters than is reflected in the population estimates.

al-Khafaji Middle Umm an-Nar (Bat Phase IVa-b) Population[511]

Structure, Phase	Number of Rooms	Total Roofed Area (m^2)	Population Estimate 1: 10 m^2 per person (Naroll 1962)	Population Estimate 2: 7-7.5 m^2 per person (Byrd 2000)
KA1, Phase 1	2	18*	1	2
KA4, Phase 1	3	12*	1	2
Total	-	30	2	4

Table 6.18: Population estimates for the Middle Umm an-Nar (Bat Phase IVa-b) structures on the Khafaji tower mound. * Indicates fragmentary building remains. The original structure would have been larger.

511 While both Structures KA1 and KA4 change slightly from Bat Phase IVa to Phase IVb, these structural alterations do not appreciably effect either building's total roofed area or population estimates.

al-Khafaji Middle Umm an-Nar (Bat Phase IVc) Population[512]

Structure, Phase	Number of Rooms	Total Roofed Area (m^2)	Population Estimate 1: 10 m^2 per person (Naroll 1962)	Population Estimate 2: 7-7.5 m^2 per person (Byrd 2000)
KA1, Phase 3	2	17*	1	2
KA4, Phase 3	3	13*	1	2
Total	-	30	2	4

Table 6.19: Population estimates for the Middle Umm an-Nar (Bat Phase IVc) structures on the Khafaji tower mound. * Indicates fragmentary building remains. The original structure would have been larger.

The process of reconstructing qualities of the households that occupied the KA1 and KA4 houses is similarly complicated by the scarcity of artifacts and use contexts recovered from within them. Yet, by considering the few objects and contexts that do survive in conjunction with their wider structural setting on the tower foundation mound it is possible to develop an interpretation of the site's households that is complementary to those already discussed at the Settlement Slope. Due to the absence of clear threshold stones, pathways of movement through Structures KA1 and KA4 cannot be identified as exactly as was possible in the Settlement Slope's Structure SS1. However, the interconnected sequence of rooms in their semi-integrated layouts would have presumably structured the use of space in all of the houses in similar ways (i.e., the partially enclosed rooms would have provided spaces for specific functions or activities such as storage, craft production, food preparation, and/or private household interaction). A possible food processing function can be tentatively suggested for the southwestern room of Structure KA1 (the room closest to the multifunctional Courtyard) based on the

[512] Alterations made to both Structures KA1 and KA4 slightly change their total roofed areas. However, neither change is significant enough to affect their estimated populations.

discovery of two grinding stones and a mortar in the room's third use phase (Bat Phase IVc). Similarly, based on the size of the room (the largest in KA4) and the presence of a small hearth, the eastern room of Structure KA4's final use phase (KA4-3; Bat Phase IVb) can be cautiously interpreted as a general living space where the household could have interacted and possibly taken meals prepared in the adjacent Courtyard.[513]

The center of household activity on the known northern half of the tower foundation mound was located in the Courtyard.[514] This outdoor space, which neighbors all three settlement buildings, was consistently the stage for domestic-type activities (i.e., food preparation, waste disposal, storage, and possibly craft production) throughout the duration of site's Middle and possibly Early Umm an-Nar occupation (Bat Phases IIIa-IVc). This is seen both in the gradual accumulation of domestic refuse and in the multiple clay or clay and gravel floors installed in the space over the course of its use. Such consistency in the domestic use of this area suggests that the changes made to the buildings around it do, in fact, reflect corresponding changes in the resident household's organization and behaviors (cf. Foxhall 2000; Herrmann 2011; Tringham 1991; 2012b). Throughout the structural (and presumably organizational) alterations made to the surrounding buildings, the Courtyard would have served as a relatively unrestricted stage for household members to carry out a variety of tasks and interact with one another and possibly visiting members of other household groups.

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513 The small size of the fire pit suggests that it was not used for food preparation or any type of large scale craft production. In the absence of further contextual information, I suggest that this fire pit was a multifunctional feature that provided warmth for Structure KA4's largest room.

514 Similar evidence of food production from Bat Phase IVa was also identified in the unstructured space of the Southern Activity Area (KASA-3).

As the social center of its household, the northern Courtyard also served to link together the house Structure KA1 and the functionally uncertain Structure KA2. This spatial relationship can be compared to that between the Settlement Slope's house Structure SS1 and its possible workshop Structure SS10. Although no use contexts were recovered from within Structure KA2, the small size of its rooms may suggest that this building was used as a storage space by the KA1 household. Structure KA4's relationship to this household socio-structural complex is less clear. While it shares a border with the Courtyard, KA4 may have been linked instead to another outdoor space located in the unexcavated contexts to the west.[515] Similarly, the Southern Activity Area's household association remains unclear. This space and its domestic-type activity may be connected to still undiscovered structures in the unexcavated contexts to the west or they may relate directly to the use of the neighboring monuments.[516]

In order to account for differences in Khafaji's Middle Umm an-Nar occupational patterns compared to those found at the Settlement Slope, we must also consider Khafaji in its wider contexts. The position of Khafaji's known settlement remains both on the tower foundation mound and within the Wadi Sharsah valley significantly influenced the community's spatial organization (cf. Hendon 2010; McMahon 2013; Thomas 2008).[517] Considering first the position of the settlement structures on Khafaji's foundation mound,

[515] The uncertainties in the relationship between the Courtyard and its surrounding buildings are largely caused by a lack of clear doorways to indicate communication between spaces.

[516] The scale of the activity in the Southern Area suggests that it supported a relatively small group of users. I therefore tentatively suggest that the space relates to a household group based in close proximity to the monuments, rather than to the monuments themselves. However, the lack of a defining courtyard wall makes this interpretation uncertain.

[517] It is probable that Khafaji's Middle Umm an-Nar settlement continued off of the tower foundation mound, in the surrounding wadi valley. However, such contexts are yet to be discovered.

the limited space, increased visibility, and proximity to the tower monument can all be understood as contributing to their socio-spatial organization. The relatively narrow (ca. 8-10 m) surface available for settlement structures and activity between the tower and the edge of the foundation mound resulted in both the irregular dimensions of the semi-integrated buildings and their close proximity to one another – far closer than any two of their contemporaries on the Settlement Slope.

At the same time, their elevated position on the mound would have rendered these buildings and their associated outdoor space(s) far more visually prominent than any similar structures located on the valley floor. Such dense architectural clustering, as seen in Structures KA1, KA2, and KA4, and their conspicuous location on the tower mound may have each have contributed to a growing need for visual and structural divisions between household groups (Chippendale 1992; Rapoport 1982; Steadman 2000; 2011).[518] The addition of the Connecting Wall to Khafaji's northern structural complex in Bat Phase IVb both spatially defined the Courtyard and granted it and its associated structures visual privacy from outside observers. A similar trend of increasing privacy was noted above as characteristic of the Settlement Slope's Late Umm an-Nar occupation (Bat Phase V), when outdoor activity areas associated with house structures were either abandoned or enclosed behind large walls (see **Section 6.3.6**). The somewhat earlier (i.e., Middle Umm an-Nar, Bat Phase IVb) example of enclosing outdoor household space, and

[518] As the available space on Khafaji's foundation mound became increasingly populated with houses and their occupant households, it would have become increasingly necessary to formally define the spaces and materials controlled by each independent household (cf. Hodder 1990; Steadman 2000; 2011). Such a growing need for privacy between household groups is typical of societies with increasing population pressure and/or social complexity (Chippendale 1992; Hodder 1990; Steadman 2000; see also Mershen 1999; Rategette 2003).

thus transforming it from semi-public to semi-private space, at Khafaji may be attributed to the position of the settlement remains on the tower mound.

The economic foundations for the KA1 household centered on Khafaji's enclosed Courtyard (the best preserved of the site's potential household contexts) are also less apparent than those of the contemporary SS1 household at the Settlement Slope. While there is ample evidence for food preparation and rubbish disposal in the Courtyard, Structure KA1 and its associated spaces were lacking clear evidence for the copper working or agricultural activity that characterized the SS1 household.[519] This apparent difference in household economies between the neighboring settlements may be explained by the KA1 household's proximity to Khafaji's monumental tower.[520] As I suggested above, the spatial relationship between the structures on the tower mound and the monument itself suggests that these buildings were in some way socially and functionally linked. The purpose of the Umm an-Nar towers has been disputed at length by archaeologists of the Oman Peninsula (cf. Cable & Thornton 2013; Cleuziou 1989; 2001; 2003; 2009; Harrower *et al.* 2014; Hastings et al. 1975:13; Orchard & Orchard 2002: 230–232; Potts 2012; Reade 2000:135–136; Weisgerber 1981:198–204). While the nuances of the debate are beyond the scope of this dissertation, a common interpretation sees the monuments as in some way controlling access to water resources for agriculture (cf. Cable 2012; Frifelt 1976:59; 1989:113; 2002:104–110; Tengberg 2003; 2012). It may

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[519] It must be noted that a possible metalworking installation was discovered in the final Umm an-Nar use phase of the Southern Activity Area (KASA-5; Bat Phase IVc). However, the relationship of this context to the neighboring tower monument and/or a household group remains unclear.

[520] It is also possible that evidence for such activities were removed or did not preserve from the KA1 household contexts.

be that, rather than directly engaging in agricultural activity or craft production, the household(s) situated on Khafaji's tower mound were instead responsible for managing or maintaining the tower monument and its access to or control over the water necessary for the community's agriculture.

This possible association between Khafaji's Middle Umm an-Nar community and the neighboring monumental tower is further supported by the increasingly monumental appearance of the settlement buildings themselves. In addition to the construction of the massive Connecting Wall, we also see renovations made to the exterior faces (e.g., those facing away from the tower) of Structures KA2 and KA4 in Bat Phase IVb that are constructed of stones visibly larger than those used in the rear of the building.[521] These renovations would have given the structures the appearance of being larger and more imposing than they actually were. I suggest that such a facade on the most visible sections of Khafaji's settlement structures was intended to send a message of monumentality that emphasized the connection between these buildings, the household(s) that they supported, and the tower monument.

Briefly considering Khafaji's wider position on the Bat landscape, we must not overlook the fact that the majority of this site remains deeply embedded in the accumulated sediment of the Wadi Sharsah. The excavated portions of Khafaji's Umm an-Nar settlement are limited only to contexts within and resting atop the tower mound. It is probable that further houses, households, and settlement areas are yet to be

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[521] The northeastern end of Structure KA1, which would have faced the rim of the foundation mound, did not preserve. Nevertheless, the alterations dating to Bat Phase VIb (KA1-2, walls 904 and 905) are constructed of notably larger stone blocks that fit the pattern of a more monumental building exterior.

discovered on the surrounding wadi valley floor. The socio-spatial organization and economic foundations of such contexts would, perhaps, be more fit comparisons to the Settlement Slope's Middle Umm an-Nar community. Further excavation is necessary to verify the existence and/or nature of such a lower town. Nevertheless, the settlement contexts known from Khafaji's tower foundation mound provide us with a valuable perspective of how Umm an-Nar communities socially and spatially interacted with their tower monuments.

The precise date when the Khafaji tower and its known surrounding settlement were abandoned is unclear. The distinctive ceramics decorated with spiraling designs (see Figs. 6.7 & 6.20) that are typical of the Settlement Slope's late Middle Umm an-Nar contexts are notably absent from the materials recovered from Khafaji.[522] This suggests an abandonment date sometime before 2200 BCE. Regardless of the exact date, by the subsequent Late Umm an-Nar Period (Bat Phase V) Khafaji's tower and settlement had been abandoned. Many centuries later, the tower and some of its surrounding contexts (see KASA-6) were re-inhabited by Early and Middle-Late Islamic populations.[523]

6.5 Conclusions

The remains at the Settlement Slope and al-Khafaji each provide valuable insight into Bat's Umm an-Nar society, especially from the level of its household foundations. In this chapter, I have detailed the results of BAP's excavations in the settlement contexts of

522 Although the identification is extremely tentative, one possible example of an Umm an-Nar sherd with a spiraling painted design was recovered from the Southern Activity Area (KASA-5; see Fig. 6.35).

523 Details of this occupation and reuse are well documented by Thornton (2016:28-34).

both sites. By constructing use-lives for each encountered building and activity area, I created a physical and chronological framework through which to contextualize their occupational histories. Through analysis of building form, spatial organization, and surviving evidence of settlement activity, I offered interpretations of the Umm an-Nar house and household. With this final section, I draw on the results from both the Settlement Slope and al-Khafaji to offer closing observations on the Umm an-Nar society and settlement tradition at Bat and beyond.

Of the numerous trends in material culture observed at the Settlement Slope and al-Khafaji, perhaps the most significant is the development of the semi-integrated building type that appears to have been consistently used at Bat as an Umm an-Nar house. We saw this building type emerge in the Middle Umm an-Nar (Bat Phase IV) and survive, with few changes, through the Late Umm an-Nar (Bat Phase V).[524] By considering this floor plan as one designed by its users to accommodate their social and economic needs (i.e., as a form of vernacular architecture),[525] I interpreted the layout as indicating specialized use of built space.[526] Such structural partitions in domestic

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[524] Most notable among the changes made to the semi-integrated buildings over the course of the Umm an-Nar Period is the complete division of one room from the other semi-integrated rooms (as seen in Structures SS2, KA1, and KA4). This division reflects some change in the use of what is typically the building's largest room and may have served as the main living area in the house.

[525] The flexibility in the dimensions of the semi-integrated floor plan seen in Khafaji's Structures KA1 and KA4 is typical of vernacular architecture, which is often characterized by a lack of precise uniformity (cf. Bleir 2006).

[526] This is particularly clear at the Settlement Slope's Structure SS1, where certain semi-integrated rooms were specifically used for storage and metallurgical activity.

architecture reflect the resident household's need for a formal division of functional space and are typical of societies with complex social and economic structures (cf. Banning 2010; Kent 1990:127; 1991:439-445; Rapoport 1990; Steadman 2010; see also **Section 2.4.3**).

Beyond the Bat heartland, buildings with a similar semi-integrated floor plan can be found at az-Zebah (Schmidt & Dopper 2014:Fig. 14), al-Maysar 1, -25 (Weisgerber 1981:Figs. 14, 30), and possibly al-Ghoryeen (al-Jahwari & Kennet 2010). However, similar structures have not yet been identified in other well-studied settlements such as Umm an-Nar Island (Friflet 1990) or Ra's al-Jinz (cf. Azzarà 2009; 2015; Cleuziou & Tosi 2000). Further excavation at these sites and others will help to determine the distribution of this building type and to confirm or refute its consistent use as a house. Furthermore, it is probable that various other building types and layouts also served as Umm an-Nar houses both at Bat and elsewhere on the Oman Peninsula over the length of the period. The identification of Bat's Middle and Late Umm an-Nar semi-integrated houses is likely but one piece of a much larger puzzle that further research will assemble.

Bat's households, whether dispersed across the Settlement Slope hillside or clustered on Khafaji's tower mound, are so far detectable through a suite of domestic-type activities most typically found in exterior courtyards or activity areas associated with a semi-integrated house structure. As so far understood at Bat, household behavior is focused on food preparation, storage, rubbish disposal, and (at the Settlement Slope) metallurgical production. Based on the size of the houses, the household groups occupying them would have been relatively small (between three and six people in the SS1 and KA1 households) and can tentatively be interpreted as nuclear families. The exclusive nature of membership in those households is indicated by the growing need throughout the Middle and Late Umm an-Nar Periods to define and protect the privacy of the outdoor domestic spaces (i.e. the construction of courtyard walls associated with Structures SS2, SS4+, and the Connecting Wall). Walled courtyards have been found in association with evidence of domestic activity at virtually every major excavated Umm an-Nar settlement, including az-Zebah (Döpper & Schmidt 2013; 2014), Ra's al-Jinz (Azzarà 2009; 2015; Cleuziou & Tosi 2000), Umm an-Nar Island (Frifelt 1995), and al-Maysar (Weisgerber 1980; 1981).[527] Such a need to define household space is typical of segmented societies with growing population density and social complexity (cf. Chippendale 1992; Rapoport 1982; Steadman 2000). Further details of Umm an-Nar household composition within this increasingly structured settlement context will doubtless emerge as more and more domestic sites are excavated.

The profile of Bat's Bronze Age society presented in this chapter is one composed of household groups that occupied the landscape of the Wadi Sharsah and its surrounding

[527] Exceptions to this are Umm an-Nar tower sites where the presence of a domestic settlement is assumed but has not yet been discovered or excavated (e.g., Hili and Tell al-Abraq).

hills for the duration of the Umm an-Nar Period. A gradually increasing degree of social complexity is suggested by the specialized use of built space and importance of privacy. Although evidence of domestic economy appears to vary between the preserved households on the Settlement Slope and Khafaji's tower foundation mound, I suggest that both the key examples discussed in this chapter (the SS1 and KA1 households) both engaged in some manner in Bat's oasis agriculture. These preliminary profiles of Umm an-Nar households from the Settlement Slope and al-Khafaji give shape to the Umm an-Nar agricultural communities already hypothesized to exist by Cleuziou and others (cf. Brunswig 1989; Cleuziou 1996; 2002; 2003; 2009; Cleuziou & Tosi 2007; Frifelt 1989; 2002a; al-Jahwari 2009; al-Jahwari & Kennet 2010; Orchard & Stanger 1994; Tengberg 2003; 2012; Tosi 1989). While this interpretation of Bat's Umm an-Nar society is far from complete, it provides a complementary microcosmic perspective to the broader spatial interpretations carried out in the previous **Chapter 5**. In the concluding **Chapter 7** that follows, I combine these settlement- and household-level assessments and offer a reinterpretation of Bat's Umm an-Nar society as a whole.

CHAPTER 7:

CONCLUSIONS

The Umm an-Nar Period brought about significant developments in the occupational history and socioeconomic complexity of the Oman Peninsula. Between 2800 and 2000 BCE, Umm an-Nar settlements and monuments were established across the peninsula in patterns and numbers notably larger and more complex than those of the preceding Hafit Period (ca. 3200-2800 BCE). Concurrently, oasis agriculture and international trade grew to become important components in the Umm an-Nar lifestyle and economy (cf. Cleuziou 2002; 2003; 2009; Cleuziou & Tosi 2000; 2007; Edens 1992; Rouse & Weeks 2011; Tengberg 2012; Thornton 2012; Tosi 1989). As the primary stages for social and economic interaction, Umm an-Nar settlements have great potential to reveal the lifestyles and qualities of the social organization that both predicated and were fueled by these broad societal developments. With this dissertation I have attempted to explore Umm an-Nar settlement and domestic traditions broadly across the Oman Peninsula and specifically at the site of Bat. The diachronic patterns of settlement organization and domestic behaviors identified in this dissertation demonstrate the growing complexity and household independence that supported the developing Umm an-Nar society.

Umm an-Nar settlements of varying sizes and compositions are known from across the Oman Peninsula (see **Chapter 3**). The locations of these sites and the materials discovered within them demonstrate the range of ways in which the Umm an-

Nar population strategically engaged with the peninsula's diverse geography and resources. It is this versatility in lifestyle and subsistence strategy that is, in part, responsible for the imbalance in the archaeological knowledge of Umm an-Nar settlements (i.e., the stone or mudbrick architecture from the Jala'an Coast and Omani interior is far more likely to survive than then the palm frond structures of the Horn of Oman). Also distracting from the humble remains and contents of the Umm an-Nar settlement architecture are the monumental towers and rich tombs typical of sites in the interior and Horn of Oman. In this dissertation, I have called for greater attention to be paid to the settlement components of the Umm an-Nar landscape in general and for a more balanced representation of settlement sites from across the Oman Peninsula to be used in reconstructions of Umm an-Nar society.

Within this broad settlement pattern, the site of Bat stands out as a key example of an oasis center that supported a flourishing community from the beginning of the Umm an-Nar Period until its end. The long history of research at the site (cf. de Cardi *et al.* 1976:146; Böhme 2012; Frifelt 1976; 1985; 1989; 2002a; Thornton *et al*. 2013; 2016) provides both a wide array of known Umm an-Nar contexts and a deep temporal frame of reference for how those contexts (settlement, monument, and mortuary) developed over time. Additionally, recent advancements in BAP's understanding of the site's chronology (cf. Thornton & Ghazal 2016) have made it possible to trace the Umm an-Nar development at Bat with a greater degree of refinement than is so far available at other sites.[528] This diachronic perspective reveals the shaping and reshaping of the site's Early Bronze Age landscape over the course of the Umm an-Nar Period (see **Chapter 4**).[529] The evolving picture of the Bat landscape, which sees settlements and monuments fall into and out of use over the course of the period, has implications for how other Umm an-Nar oasis sites, especially those with multiple centers of activity, are understood in the field. The scale and duration of occupation at such sites must be considered through a perspective of diachronic change in order to reveal the important societal developments that characterize the Umm an-Nar Period.

The organization of settlements across the Bat landscape and of the architecture within those settlements can also be used to interpret qualities of the site's Umm an-Nar social organization and complexity (see **Chapter 5**). The visual links between Bat's tower monuments, and presumably their associated settlements, indicate the development of an increasingly interconnected network of Umm an-Nar groups in the Wadi Sharsah. Such a conceptual association between Bat's settlements speaks to the question of whether Umm an-Nar sites that feature multiple monuments and centers of occupation should be considered as a single community or as several independent but neighboring communities (cf. al-Jahwari 2009; al-Jahwari & Kennet 2010; Frifelt 1976; 1985; 2002a;

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528 A possible exception is the oasis site of Hili, where architectural and ceramic sequences make it possible to observe long-term trends in Umm an-Nar behavior and material culture. However, the limited scale of identified and excavated settlement contexts a Hili restricts the interpretive impact of these tends.

529 In the Early Umm an-Nar, known activity centered on and in the immediate vicinity of three monumental towers (Kasrs al-Matariya, al-Khafaji, and the Settlement Slope's structure 1156) but no clear settlements have yet been identified. The Middle Umm an-Nar featured the development of settlement contexts with rectilinear architecture and evidence of domestic activity located in the relative vicinity of tower monuments at the Settlement Slope, al-Khafaji, and al-Khutm. This settlement pattern appears to have continued into the Late Umm an-Nar, when we see occupation expand along the Settlement Slope, further tower monuments constructed in the southern half of the Wadi Sharsah, and the satellite community of az-Zebah flourish in the countryside to the north. See **Chapter 4** for further discussion.

Orchard 2000). The intentional establishment of visual connections between both active and abandoned monuments suggests that the inhabitants of the various settlements distributed across Bat's landscape identified as a single, extended community with real or fictive ties to the site's earlier populations.

Within those settlements, systems of built and unbuilt space further reflect the social structure of Bat's Umm an-Nar community. The organization of settlement space into architectural groups can be understood as representing a corresponding division of the settlement's population into social sub-groups. Access to private built spaces was controlled by semi-private spaces that were defined either by walled courtyards or topographic zones created by the settlement's underlying terrain. Such social segmentation of Bat's Umm an-Nar community into sub-groups can be compared to the hypothesized extended household groups of Ra's al-Jinz (cf. Azzarà 2009; 2015; Cleuziou 2003; 2009; Cleuziou & Tosi 2000) and the possibly kin-based communal Umm an-Nar tombs (cf. Blau 2001; Cleuziou 2002; 2003; Cleuziou & Tosi 2007; McSweeny *et al*. 2008). While further research is necessary to clarify the nature of Umm an-Nar social organization throughout the period and across the Oman Peninsula, the spatial organization of Bat's settlements adds a further layer of support to interpretations of a lineage-based Umm an-Nar society.

The household groups that occupied Bat's settlements formed the foundation of the site's Umm an-Nar community. These groups are identifiable in the archaeological record through the structural remains of the houses they resided in and the evidence of the domestic and economic activities they carried out. In excavated portions of the Umm an-Nar settlements at the Settlement Slope and al-Khafaji (see **Chapter 6**), buildings used as stages for domestic activity (i.e., houses) consistently featured a semi-integrated floor plan that created defined spaces for specific activities (e.g., metallurgical craft production, storage, or household interaction). Outdoor areas adjacent to the houses provided multi-functional space for a variety of activities and social interactions, while also linking the houses to other specialized structures or spaces controlled by the household (e.g., workshops or storage structures). The gradual enclosing of these outdoor spaces into walled courtyards reflects a growing need for privacy and for defining household space as the Umm an-Nar Period progressed.

Although only a limited sample of settlement contexts have so far been excavated at the Settlement Slope and al-Khafaji, the results of those excavations provide evidence for a preliminary profile of Bat's Umm an-Nar households. The houses and courtyard compounds identified in the site's settlements appear to have been occupied by relatively small household groups that possibly represent nuclear or slightly extended families. The private storage capabilities and increasingly well-defined space controlled by each household indicate that these groups were economically independent entities. The foundations of the household economies at both settlements appear to rely in some way on Bat's oasis agriculture.[530] Yet, evidence for skilled metallurgical activity is found in domestic contexts at both excavated settlements, especially the Settlement Slope, and suggests a degree of formal division of household labor. These small, agricultural household groups contrast with the large, extended, and economically specialized

530 This agricultural foundation is manifest either though direct engagement with the cultivation or though possible management of water resources.

households that have been proposed for Ra's al-Jinz (Azzarà 2009; 2015; Cleuziou & Tosi 2000). However, they neatly align with the small, independent houses at al-Maysar and their evidence for both agriculture and domestic craft production (Weisgerber 1980; 1981). Bat's Umm an-Nar households thus appear to represent a basic system of social organization that is likely typical of the period's oasis communities but differs somewhat from the specialized communities known from the Jala'an Coast.

The Umm an-Nar settlement and household traditions involved a wider and far more dynamic set of practices than can be encapsulated by any one site, be it Ra's al-Jinz, Umm an-Nat Island, Tell Abraq, Maysar, or Bat. While this dissertation advances the study of Umm an-Nar settlements by one such site, there is far more research to be done both at Bat and elsewhere before a balanced interpretation of the lived Umm an-Nar society is achieved. Broad areas of the Oman Peninsula, perhaps most notably the Batinah Coast, remain understudied, while others could benefit from a wider sampling of settlement sites. The multi-scalar research strategy developed in this dissertation offers a variety of methodological approaches to exploring and refining interpretations of Umm an-Nar settlements throughout the peninsula. The methods of spatial analysis described in **Chapter 5** have the potential to be particularly useful for wide portions of the Umm an-Nar landscape where monuments and settlement architecture are preserved at the modern ground surface. In such cases, although it is unlikely that significant use contexts will be preserved within or around the buildings, it is still possible to derive valuable information regarding the social organization and complexity of the site's resident Umm an-Nar community through the architectural remains alone. At sites where contexts have preserved within and around settlement architecture, a robust investigation of building function and use of space, such as that described in **Chapter 6**, has the potential to differentiate domestic and non-domestic structures and to reveal socioeconomic qualities of the Umm an-Nar households that used them.

Finally, within the Bat archaeological landscape, there are many Umm an-Nar settlement contexts yet to be explored. The possibility of lower towns being buried and preserved on the Wadi Sharsah valley floor around the Matariya and Khafaji towers is particularly alluring. Similarly, the largely unexplored areas around Kasr al-Sleme and the Umm an-Nar tower beneath the Husn al-Wardi have the potential to contain rich Early Bronze Age settlement contexts. Future research in any of these areas has the potential to rewrite our understanding of Bat's Umm an-Nar settlement tradition and society. While Bat's stone wall foundations and scattered traces of food preparation or metallurgical craft production do not have the visual impact of the site's monumental towers and tombs, I argue that it is in these humble remains that the lived Umm an-Nar society that brought about such dramatic change to the Oman Peninsula can be found.

APPENDIX A:

RADIOCARBON DATES

A.1 Settlement Slope

Sample Number	Bat Context	Tower/ Site	Period	Conventional Radiocarbon Age	Calibrated Date (BETA) (2-sigma cal. BC)	Calib.Rev. 6.0.1 (2-sigma)
D-AMS 6425	Hearth in sounding below Structure SS1 (Pre-SS1-1A)	Settlement Slope	Middle Neolithic	5919 +/- 27 BP	Unavailable	4850-4720 (100%)
D-AMS 6423	Ash lens in sounding below Structure SS1 (Pre-SS1-1B)	Settlement Slope	Hafit	4424 +/- 25 BP	Unavailable	3285-3235 (6%) 3115-2935 (94%)
D-AMS 6424	Hearth in NW room of Structure SS1 (SS1-1)	Settlement Slope	Mid. Umm an-Nar	3916 +/- 29 BP	Unavailable	2480-2315 (100%)
Beta 344222	Fire pit in activity area to the NW of Structure SS1, above SS11, and below SS10 (Pre-SS10-1A)	Settlement Slope	Mid. Umm an-Nar	3830 +/- 30 BP	2430- 2150 cal. BC	2430-2195 (99%)

Sample Number	Bat Context	Tower/ Site	Period	Conventional Radiocarbon Age	Calibrated Date (BETA) (2-sigma cal. BC)	Calib.Rev. 6.0.1 (2-sigma)
D-AMS 6422	Hearth below wall 420 of Structure SS3, associated with eastern activity area of Structure SS1 (SS1-1 to SS1-3)	Settlement Slope	Mid. Umm an-Nar	3906 +/- 25 BP	Unavailable	2470-2315 (100%)
Beta 344221	Charcoal from Wall 407b of Structure SS1 (SS1-2)	Settlement Slope	Mid. Umm an-Nar	3860 +/- 30 BP	2460-2200 cal. BC	2260-2220 (9%) 2450-2265 (91%)
Beta 344220	Hearth in NW room of Structure SS1 (SS1-5)	Settlement Slope	Early Wadi Sûq	3540 +/-30 BP	1950-1770 cal. BC	1950-1770 (100%)
D-AMS 6421	Charred area on floor of Structure SS3 (SS3-3)	Settlement Slope	Middle/ Late Wadi Sûq	3421 +/- 31 BP	Unavailable	1865-1825 (5%) 1795-1635 (95%)

Table A.1: Radiocarbon dates from settlement contexts at the Settlement Slope (see also Thornton 2016b: Table IV.1).

A.2 Kasr al-Rojoom

Sample Number	Bat Context	Tower/ Site	Period	Conventional Radiocarbon Age	Reported Median	Calib.Rev. 6.0.1 (2-sigma)
K-3207	Hearth outside of tower	Rojoom	Umm an-Nar	3860 +/- 115	2400 BC	2625-1970 (100%)
K-3208	Hearth outside of tower	Rojoom	Umm an-Nar	3900 +/- 85	2455 BC	2600-2130 (100%)
K-2797	Hearth within tower, beneath interior walls	Rojoom	Umm an-Nar	3980 +/-80 BP	2570 BC	2700-2220 (96%)

Table A.2: Radiocarbon dates from Kasr al-Rojoom (see also Frifelt 1985:104).

A.3 al-Khafaji

Sample Number	Bat Context	Tower/ Site	Period	Conventional Radiocarbon Age	Calibrated Date (BETA) (2-sigma cal. BC)	Calib.Rev. 6.0.1 (2-sigma)
Beta 260661	Floor of structure below tower in Trench A	Khafaji	Hafit	4330 +/- 40 BP	3020 to 2890	3040-2890 (99%)
Beta 260662	Charcoal from mudbrick layer beneath the tower in Trench A	Khafaji	Early Umm an-Nar	4070 +/- 40 BP	2850 to 2810, 2750 to 2720, 2700 to 2480	2860-2810 (10%) 2750-2480 (90%)
D-AMS 6427	Ash pit in gravel surface south of and level with wall 925 (KASA-1)	Khafaji	Early Umm an-Nar	4093 +/- 24 BP	Unavailable	2850-2805 (14%) 2745-2705 (4%) 2700-2570 (82%)
Beta 260664	Fire pit in Courtyard (KACC-3)	Khafaji	Middle Umm an-Nar	3850 +/- 40 BP	2460-2200	2460-2200 (100%)
Beta 260663	Fire pit in Courtyard (KACC-4)	Khafaji	Mid. Umm an-Nar	3900 +/- 40 BP	2480-2240	2480-2240 (99%)
D-AMS 6426	Oven in Southern Activity Area (KASA-3)	Khafaji	Mid. Umm an-Nar	3904 +/- 26 BP	Unavailable	2470-2310 (100%)

Table A.3: Radiocarbon dates from settlement contexts at al-Khafaji (see also Thornton 2016b: Table IV.1).

APPENDIX B:

BAT SETTLEMENT PLANS

B.1 Settlement Slope Plans

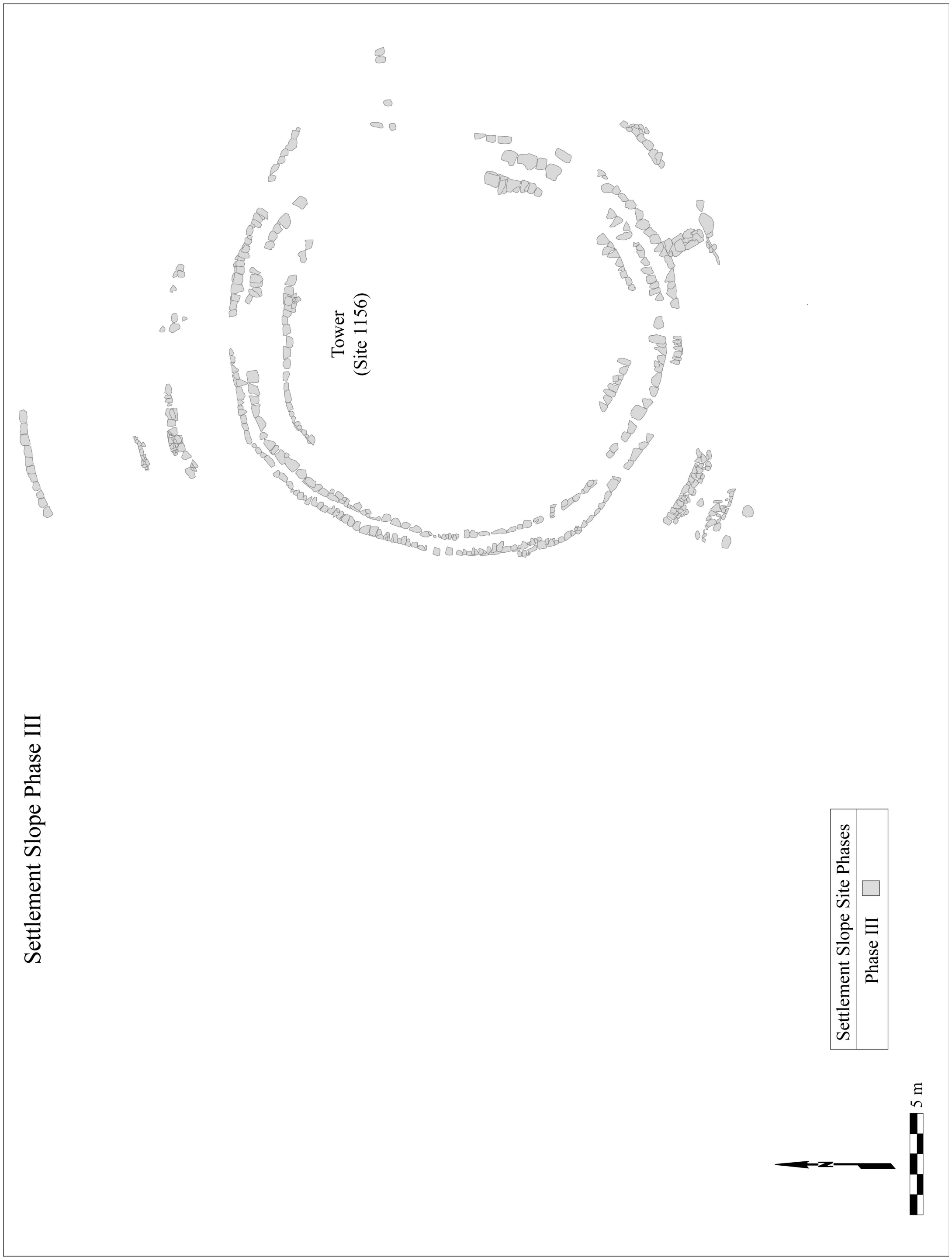


Fig. B.1: Settlement Slope architecture Phase III.

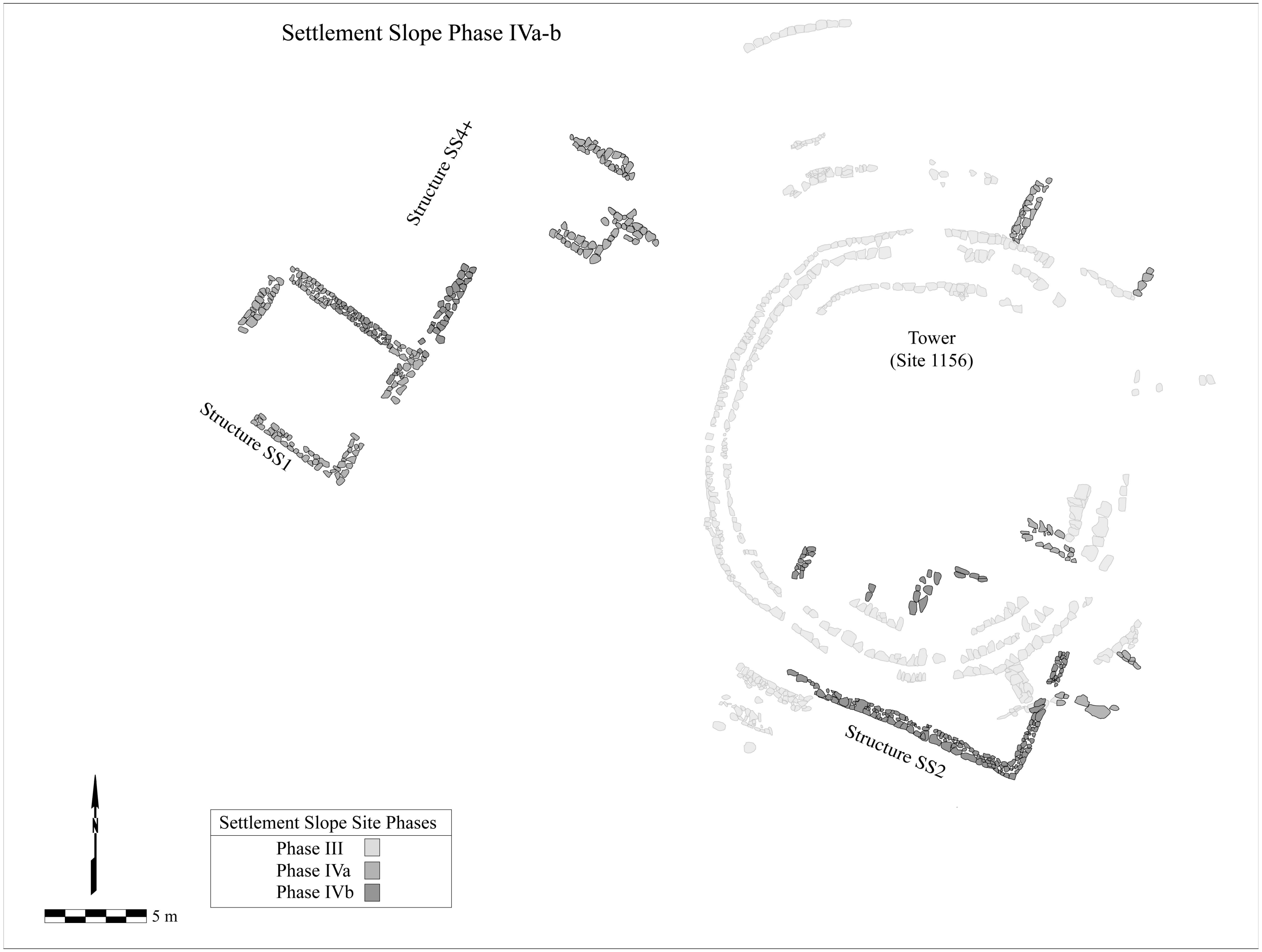


Fig. B.2: Settlement Slope architecture Phase IVa-b.

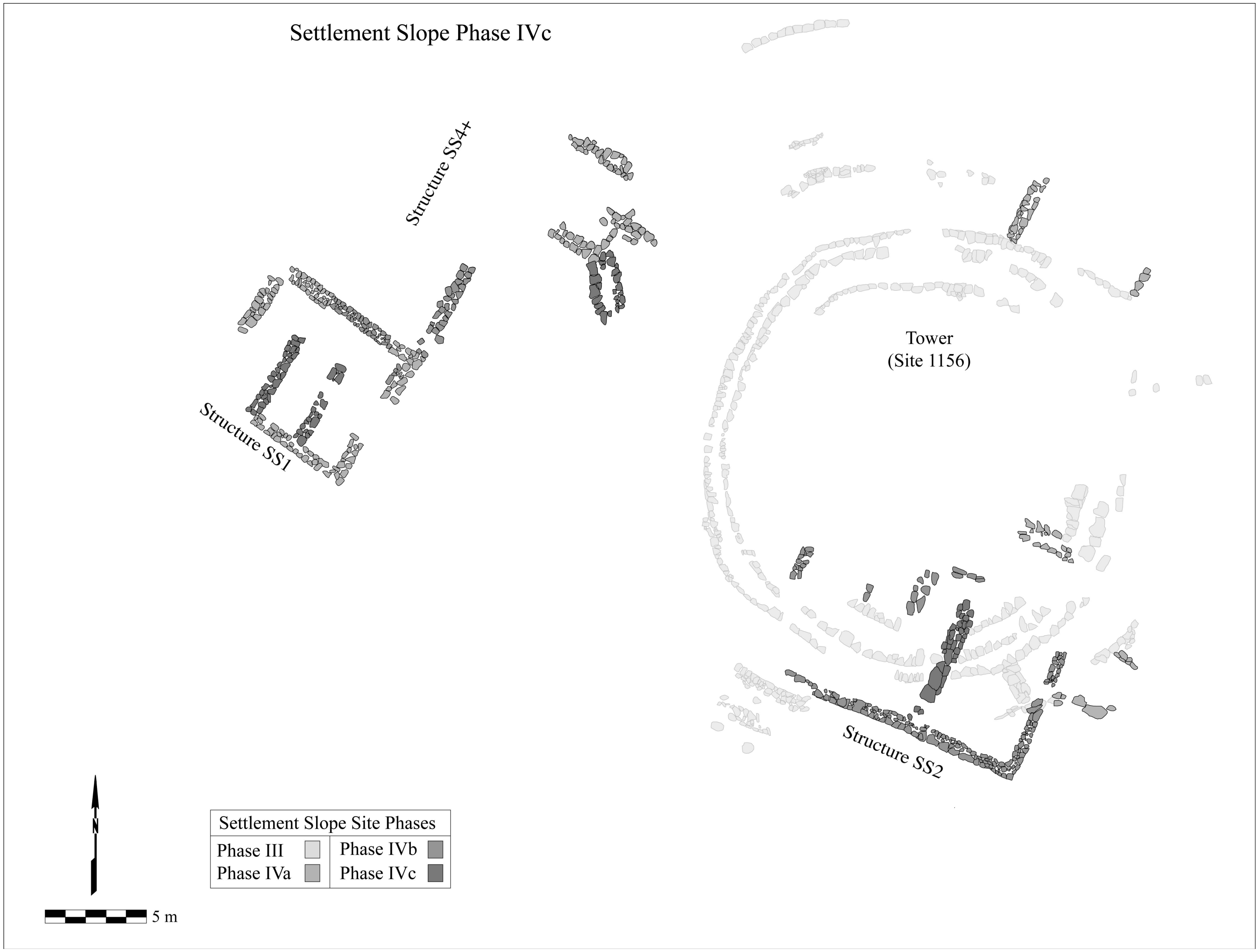


Fig. B.3: Settlement Slope architecture Phase IVc.

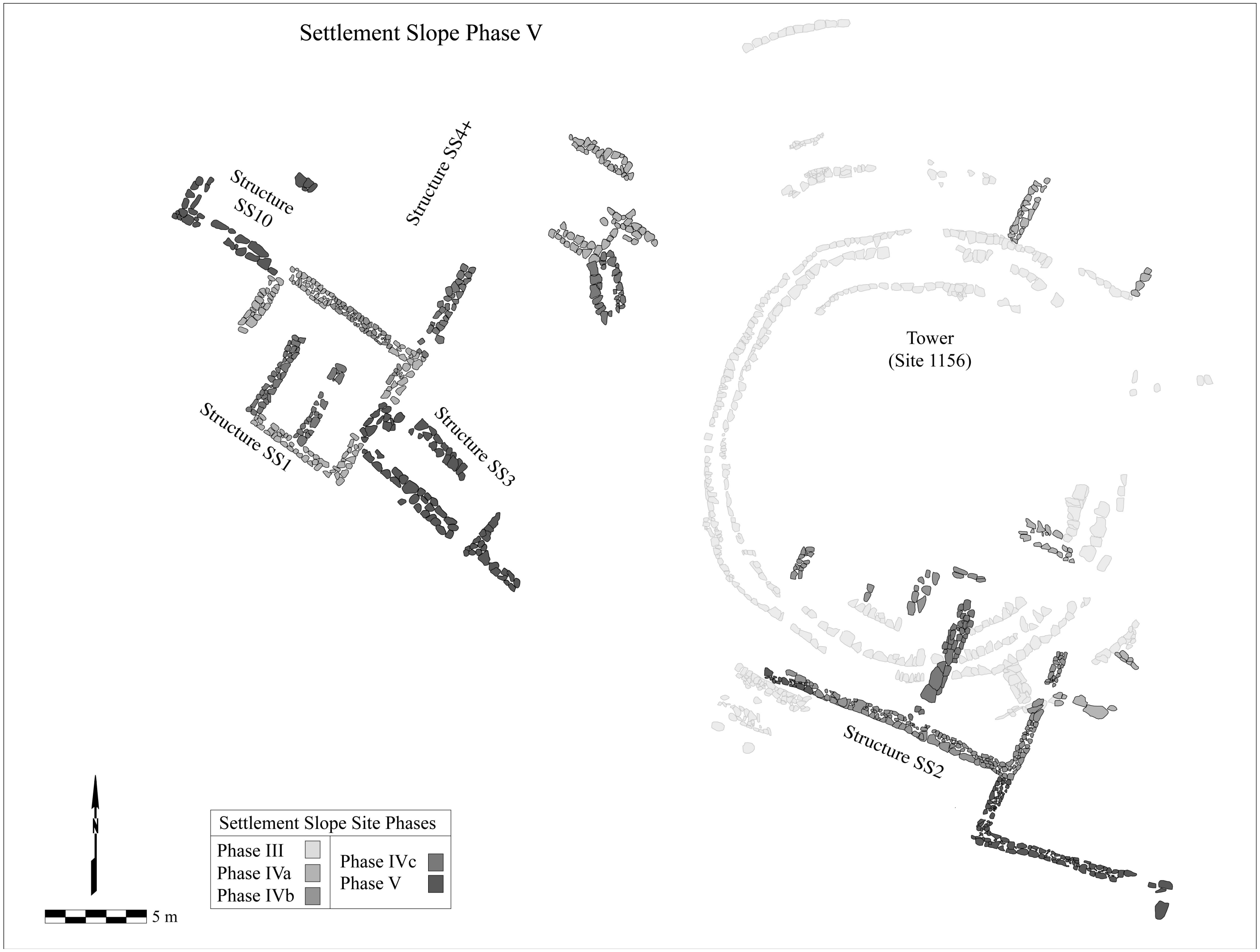


Fig. B.4: Settlement Slope architecture Phase V.

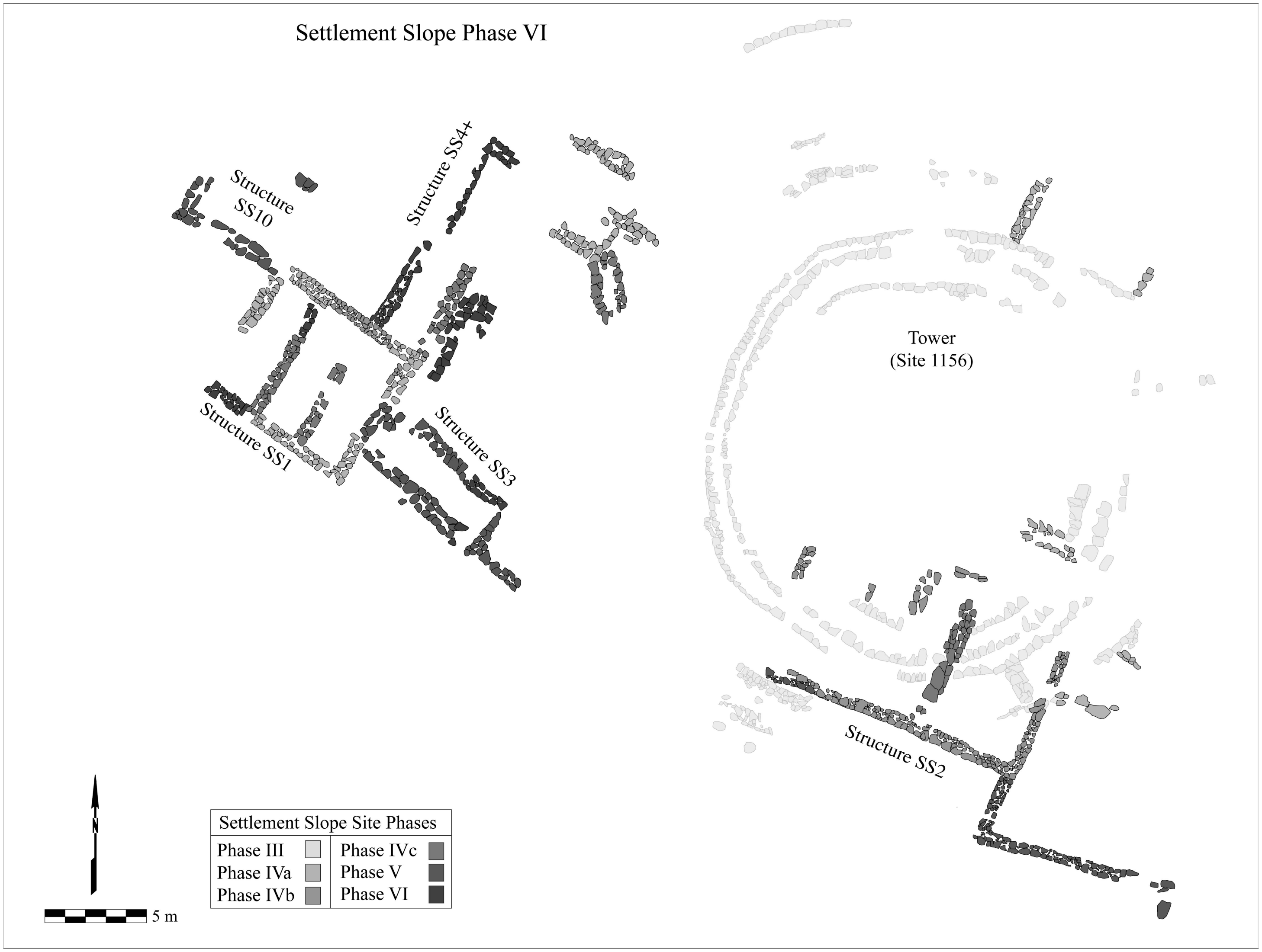


Fig. B.5: Settlement Slope architecture Phase VI.

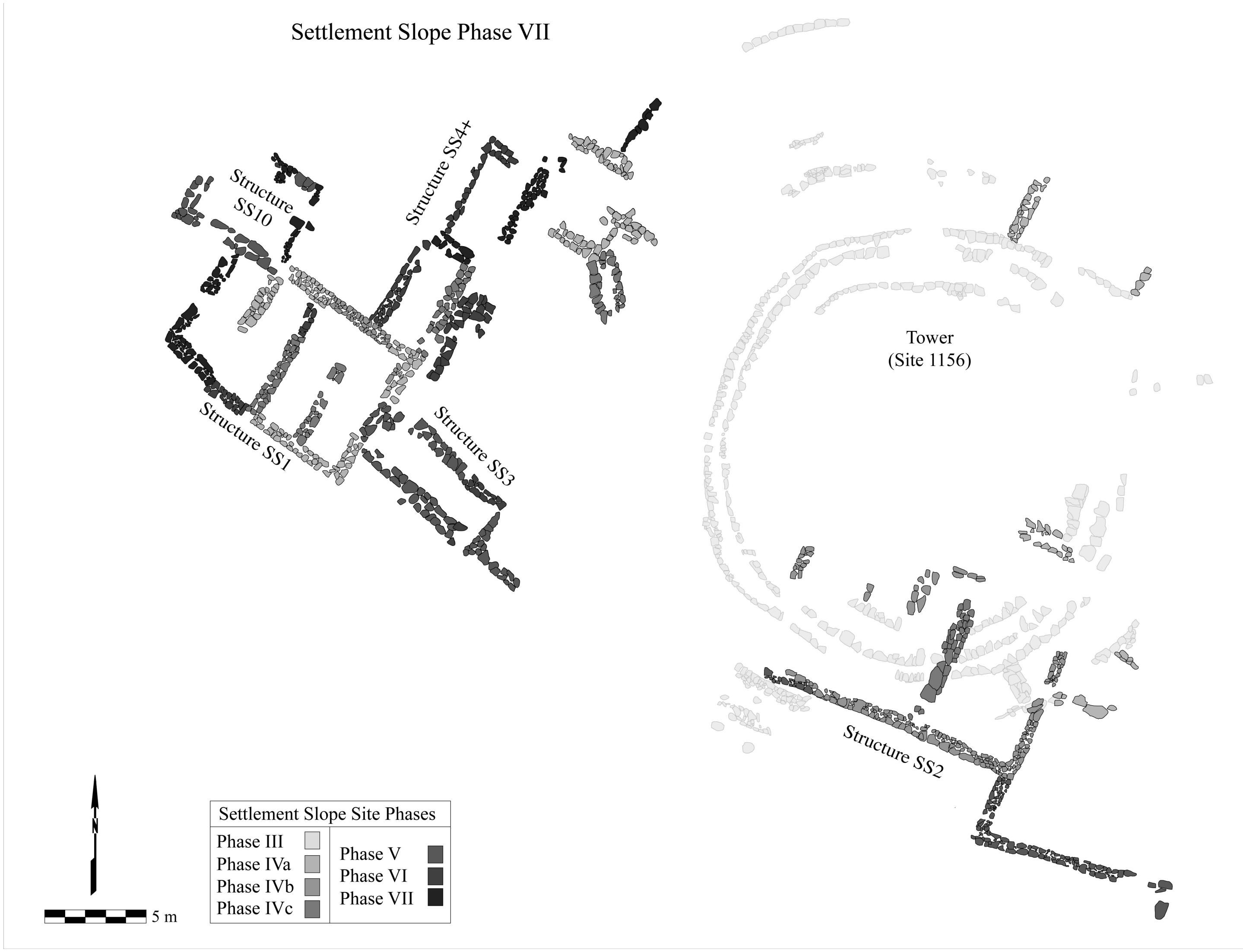


Fig. B.6: Settlement Slope architecture Phase VII.

B.2 Kasr al-Rojoom Plan

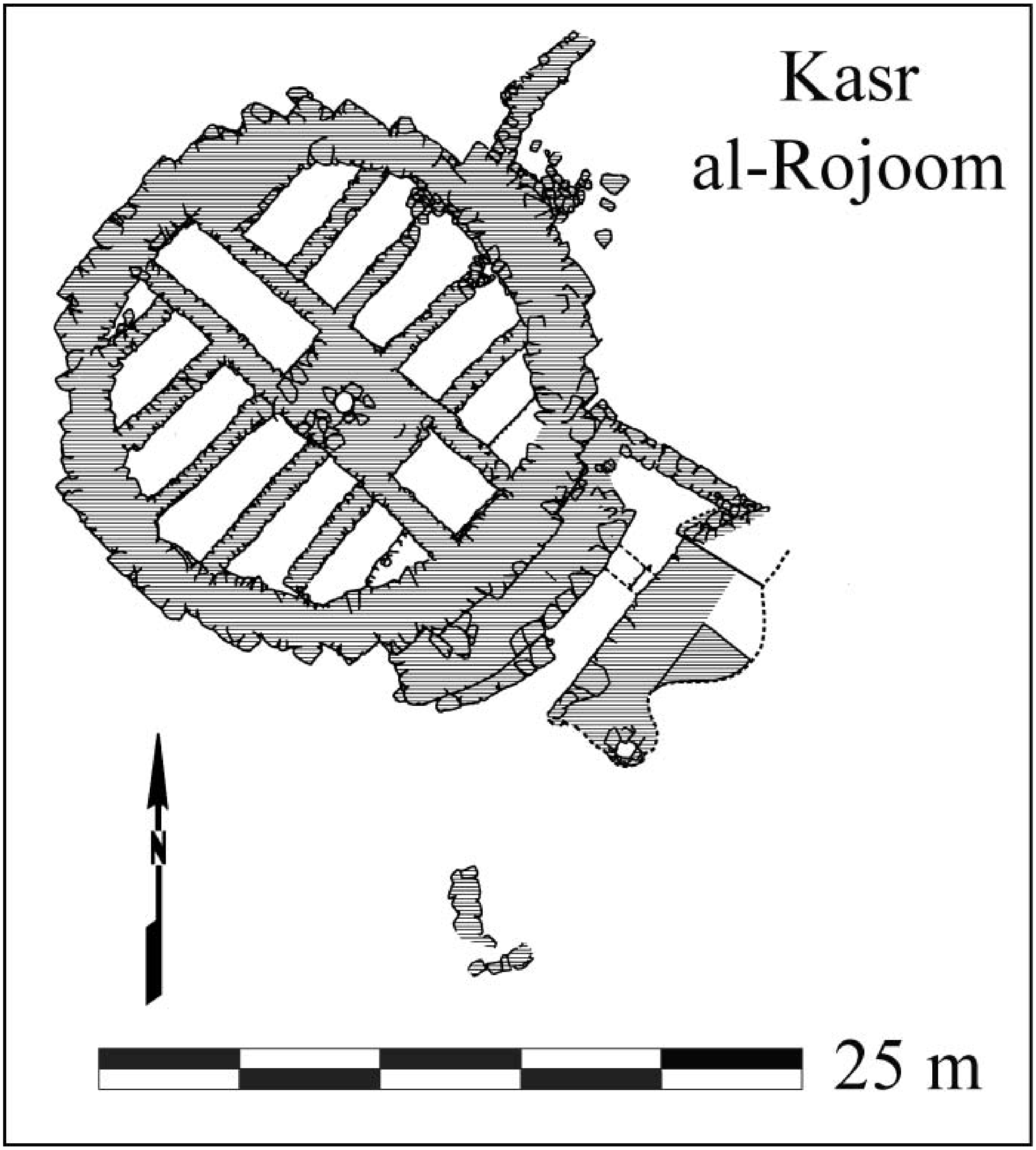


Fig. B.7: Kasr al-Rojoom and surrounding architecture (after Cable 2016b:171, Fig. 8.2).

B.3 al-Khafaji Plans

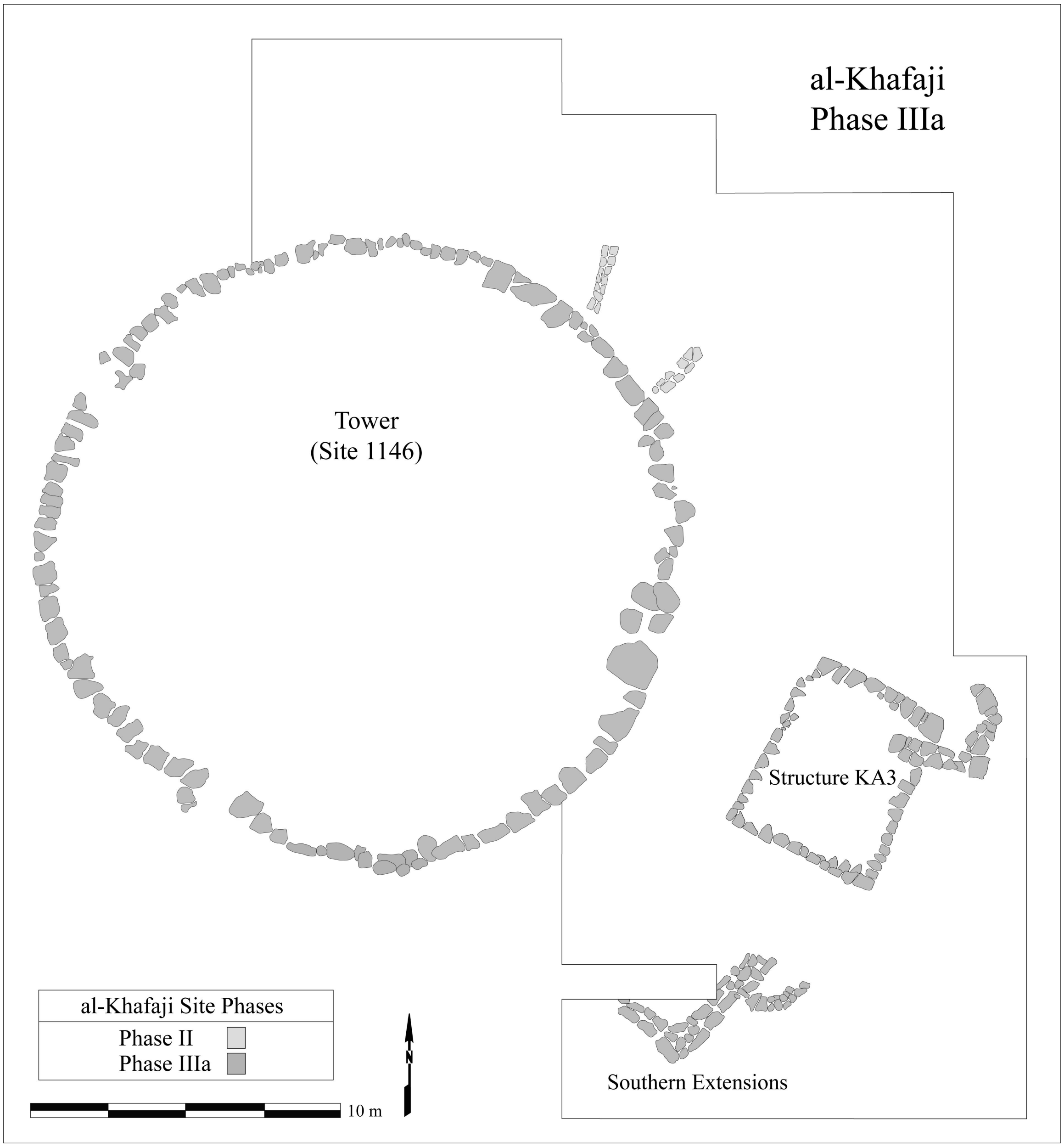


Fig. B.8: al-Khafaji architecture Phase IIIa.

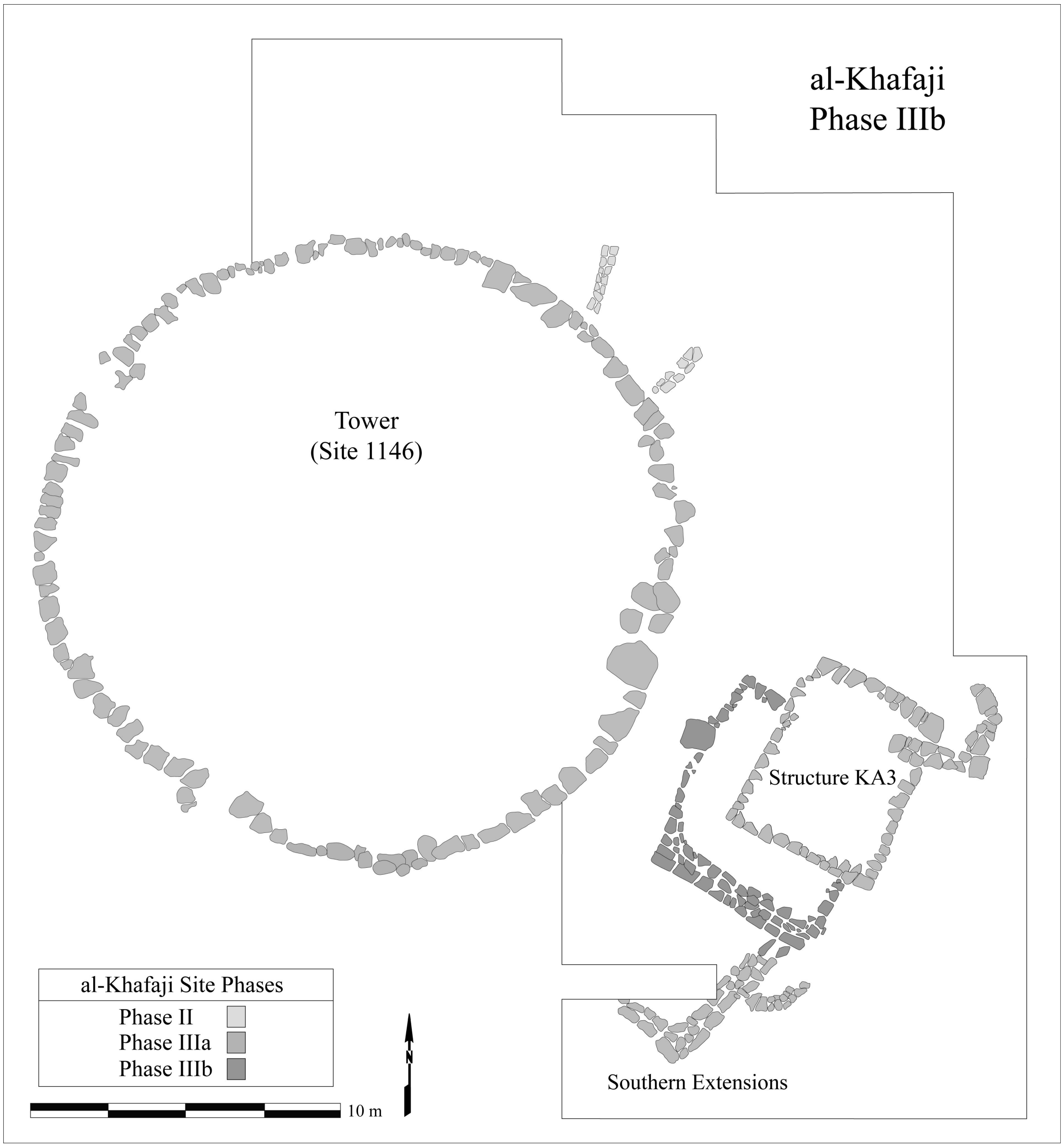


Fig. B.9: al-Khafaji architecture Phase IIIb.

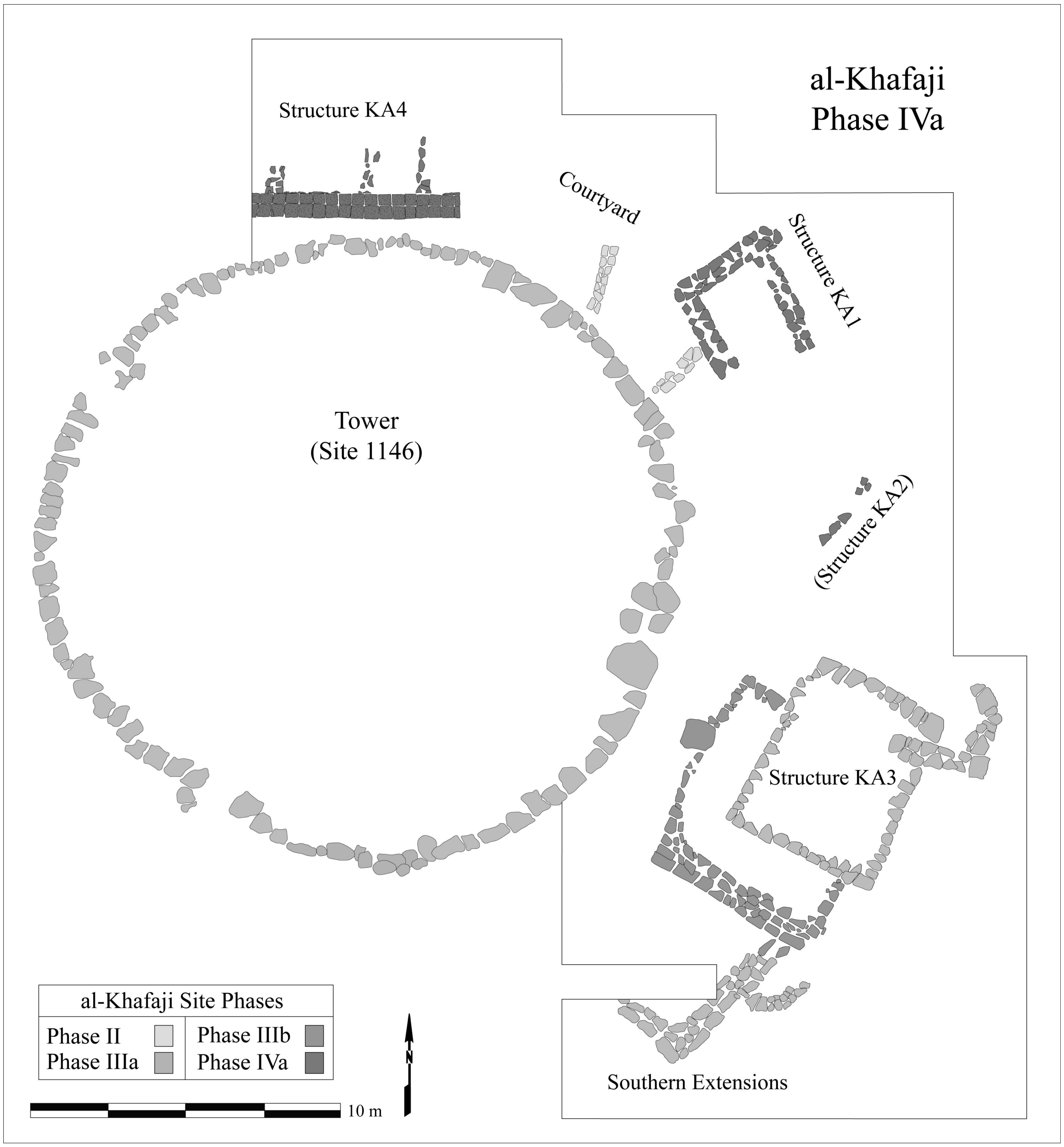


Fig. B.10: al-Khafaji architecture Phase IVa.

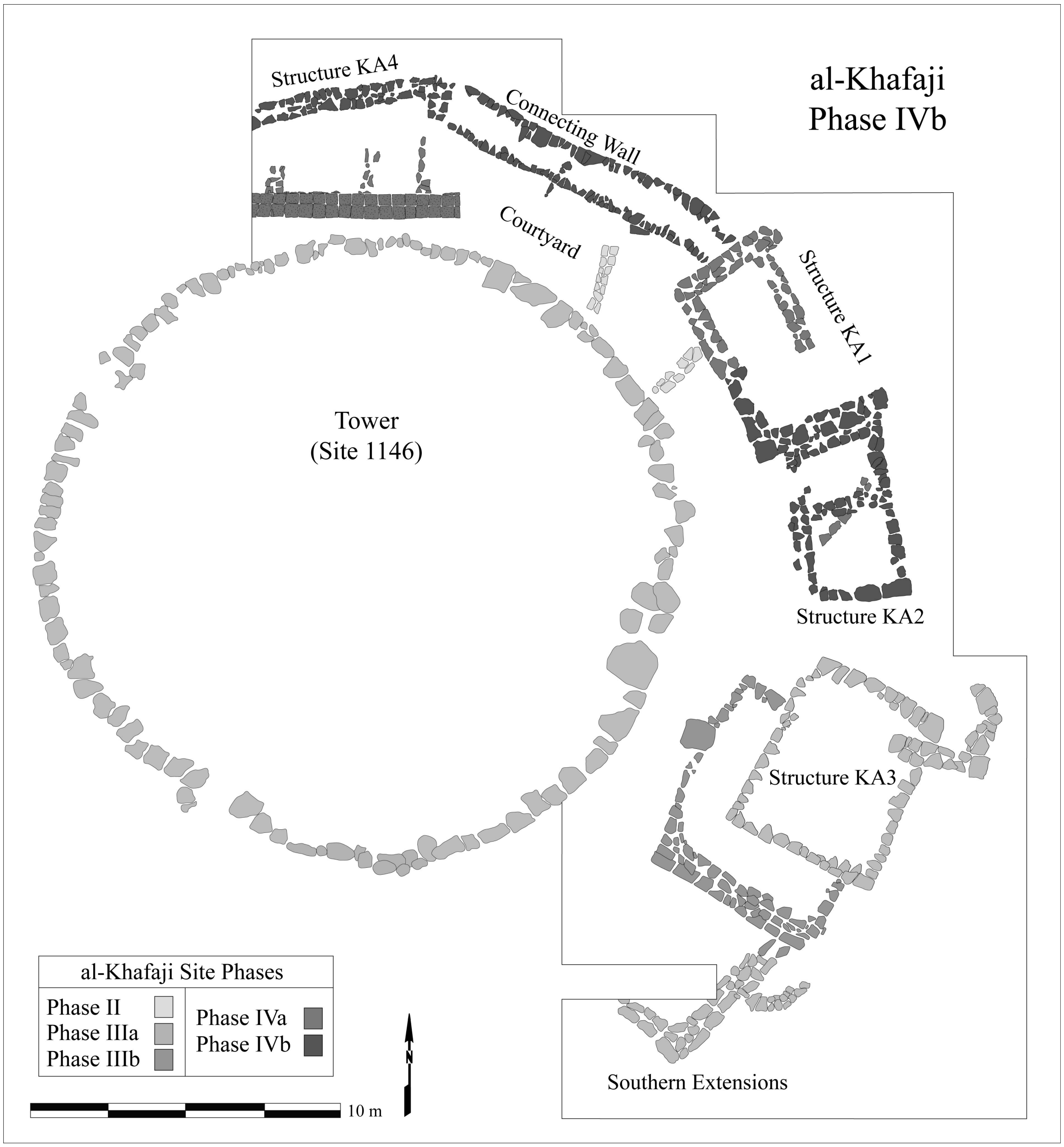


Fig. B.11: al-Khafaji architecture Phase IVb.

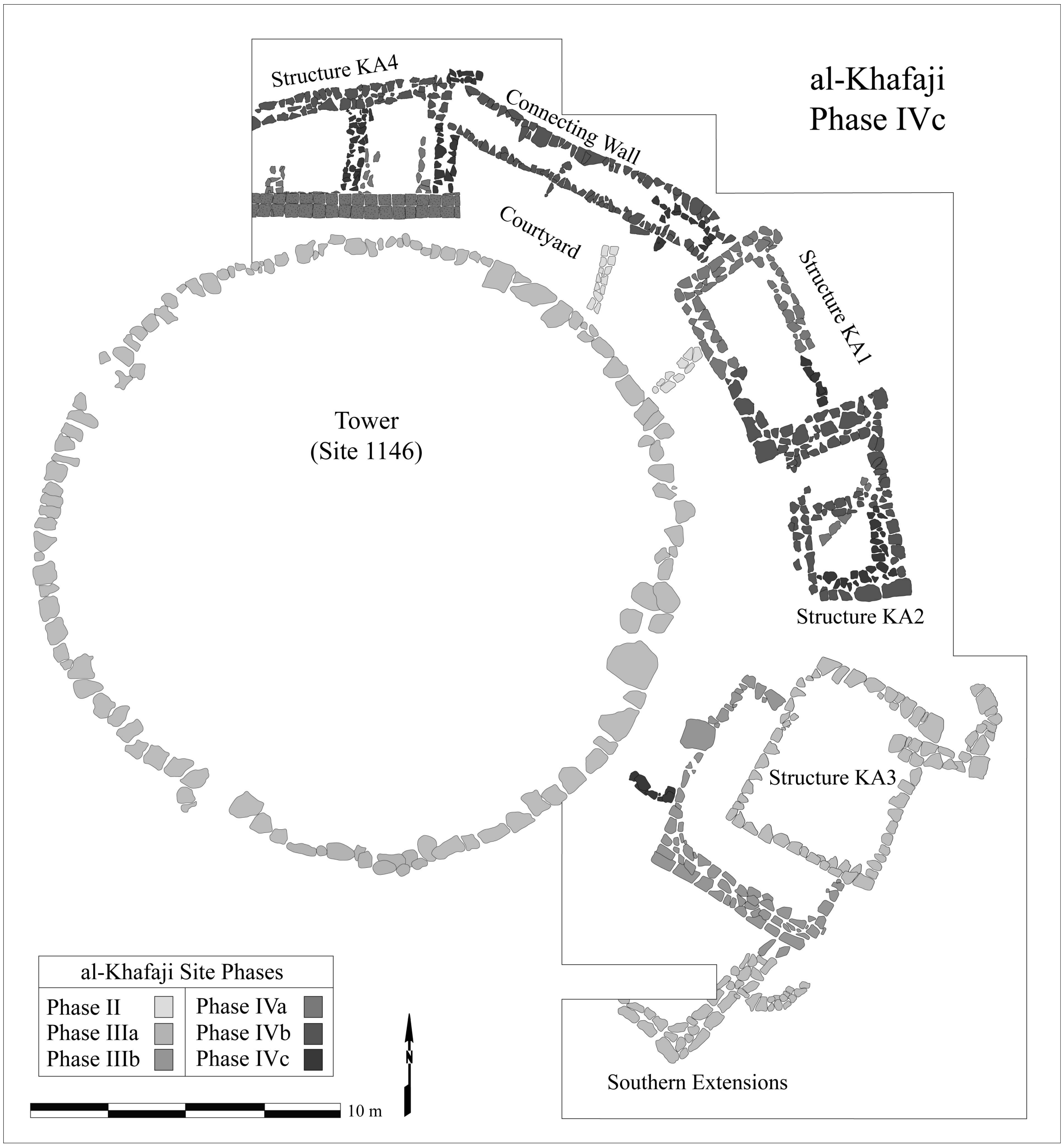


Fig. B.12: al-Khafaji architecture Phase IVc.

B.4 al-Khutm Settlement Plan

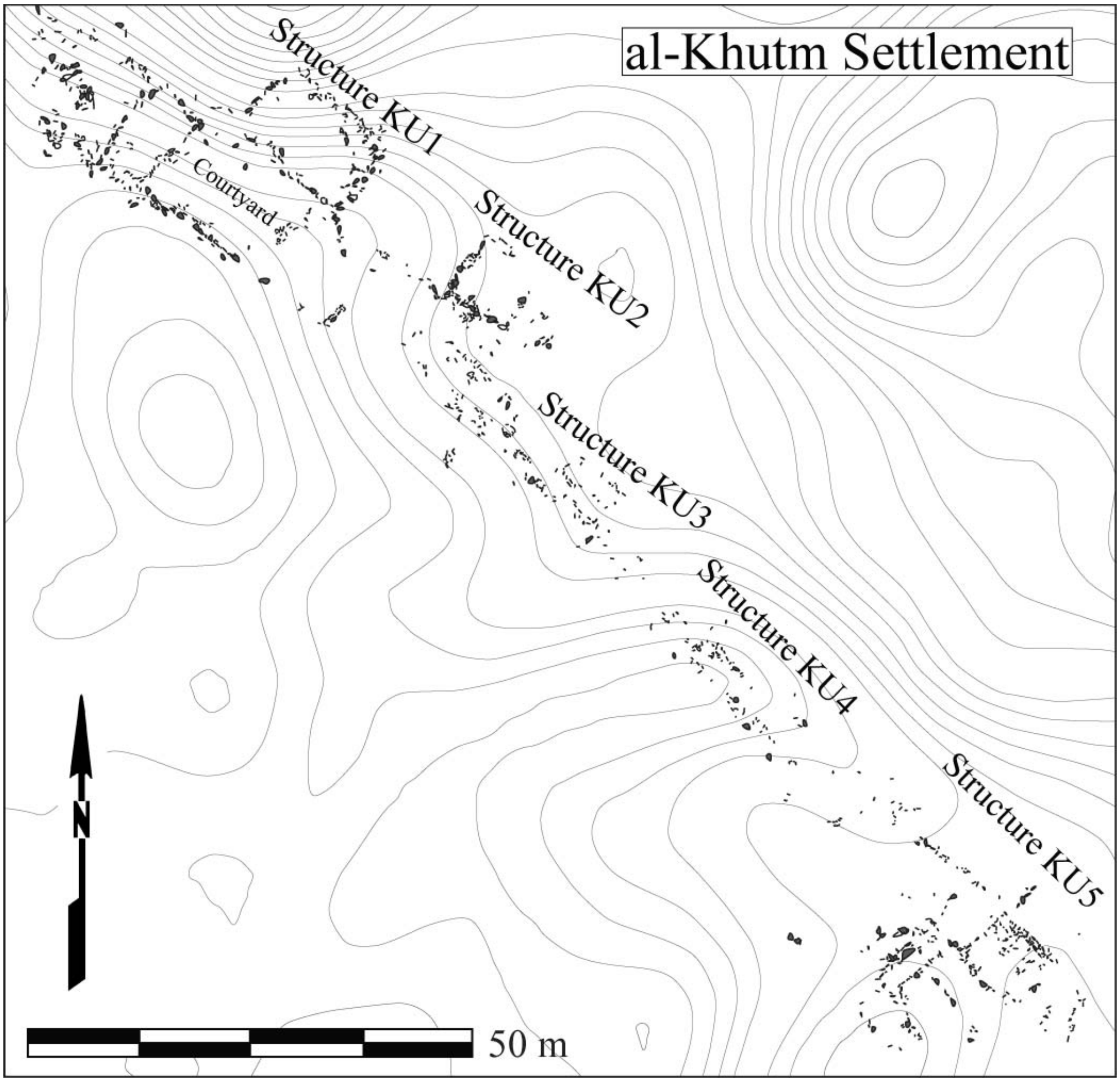


Fig. B.13: al-Khutm settlement architecture.

B.5 az-Zebah Plan

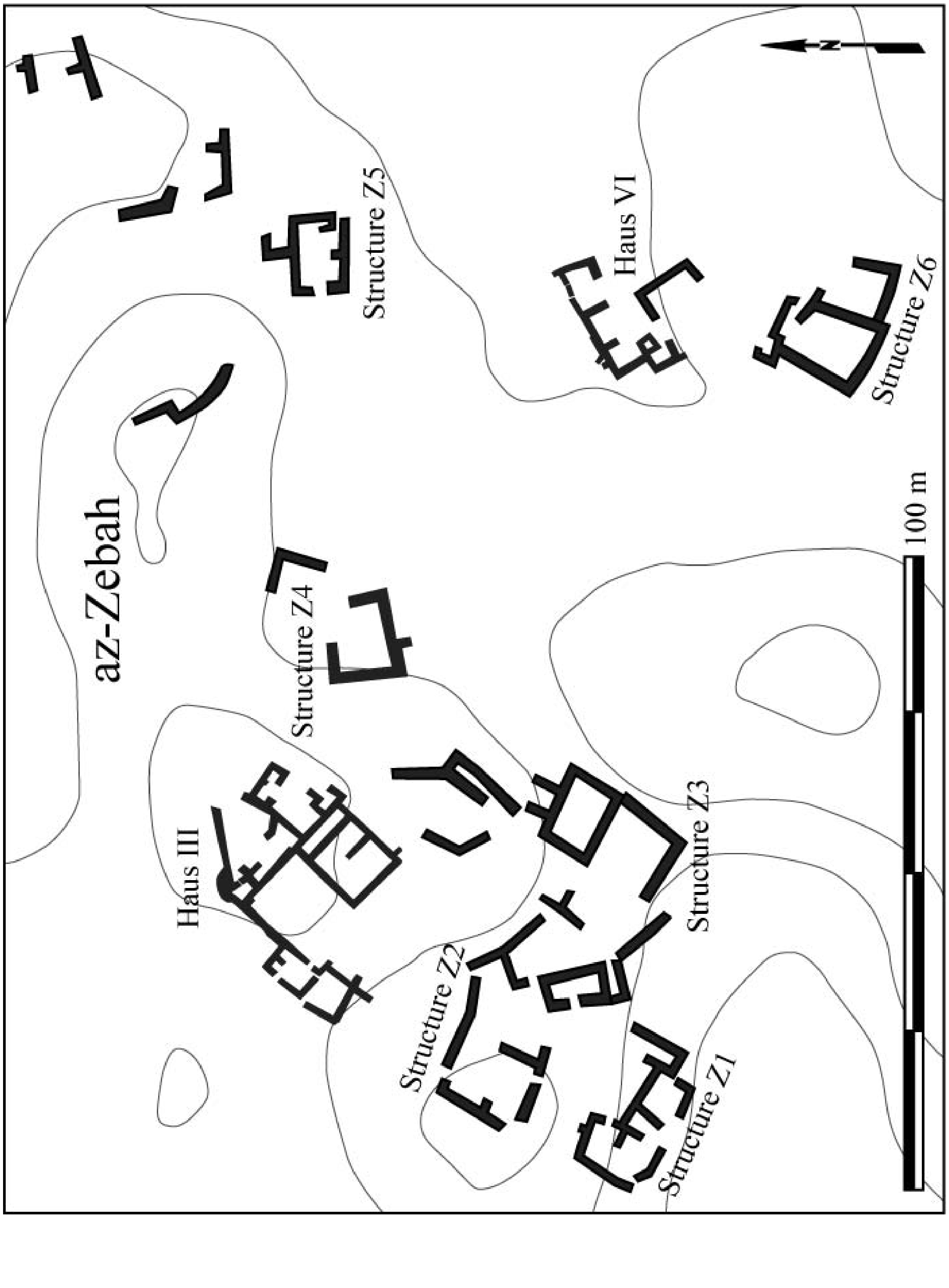


Fig. B.14: az-Zebah settlement architecture.

APPENDIX C:

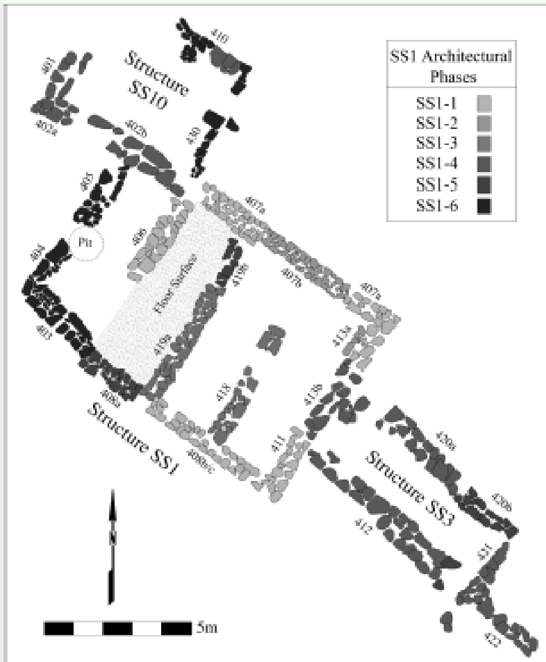
SETTLEMENT ARCHITECTURE PLANS & METRICS

Site: Settlement Slope

Structure Number: SS1

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 10.9 m **Width:** 7.5 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 6 **Number of Rooms:** 4

Exterior Wall Width: 0.7 **Interior Wall Width:** 0.6

Interpretation: House

	Length		Width		Roofed?
Room 1	5.5	m	4.6	m	Roofed
Room 2	2.6	m	1.8	m	Roofed
Room 3	2.6	m	1.8	m	Roofed
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 46.3 sq. m **Total Area:** 46.3 sq. m

Layout Description: Unrestricted, rectangular structure (SS1-1 & SS1-2); Semi-integrated structure (SS1-3 & SS1-4); NE room enclosed (SS1-5); New NE room added (SS1-6).

Significant Finds: Painted Middle Umm an-Nar jar in central room (SS1-3); Copper sickle and pin in NE room (SS1-3).

Features: Hearth in NE corner (SS1-1 & SS1-2); Clay floor (SS1-1, SS1-2, SS1-3, SS1-4); Threshold stone in wall 408b/c (SS1-1 to SS1-3); Hearth in NE room (SS1-4); Pit cutting wall 404/405 (SS1-6).

Notes: Associated with outdoor activity area to the east (SS1-1 to SS1-3); Possibly associated with outdoor metallurgical installation (SS1-3); Possibly associated with SS10 workshop.

Plate C.1: Settlement Slope, Structure SS1.

Site: Settlement Slope

Structure Number: SS2

Field Research Method: Excavation

Building Plan:

Building Overview:

Length: 24.6 m **Width:** 9.7 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 2 **Number of Rooms:** 5

Exterior Wall Width: 0.8 **Interior Wall Width:** 0.8

Interpretation: House

	Length		Width		Roofed?
Room 1	7.4	m	2.9	m	Roofed
Room 2	7.4	m	1.9	m	Roofed
Room 3	7.1	m	1.7	m	Roofed
Room 4	7.4	m	4.6	m	Uncertain
Room 5	9.7	m	9.3	m	Unroofed
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 86.3 sq. m **Total Area:** 212.3 sq. m

Layout Description: Semi-integrated structure (SS2-1); Eastern room fully enclosed (SS2-2); Walled courtyard added to east (SS2-3).

Significant Finds: N/A

Features: N/A

Notes: Interior contexts destroyed by the construction of a Wadi Sûq platform over the building.

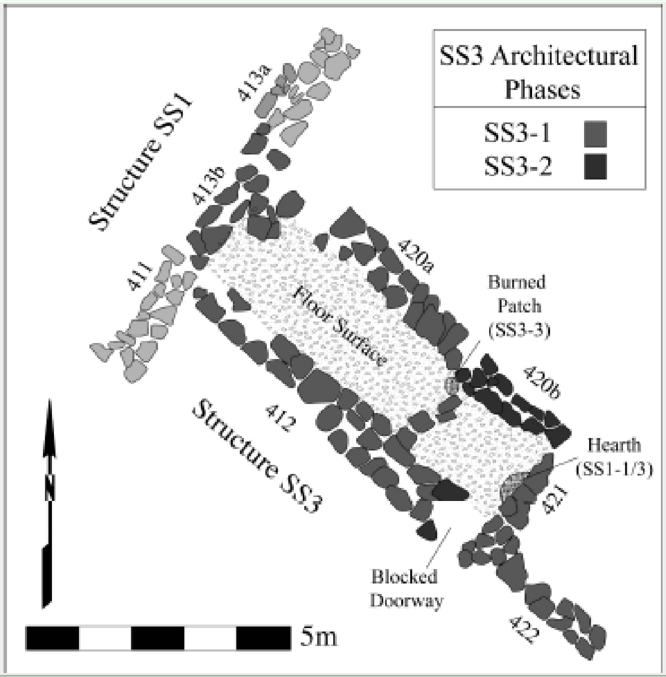
Plate C.2: Settlement Slope, Structure SS2.

Site: Settlement Slope

Structure Number: SS3

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 6.1 m **Width:** 0.9 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 2 **Number of Rooms:** 1

Exterior Wall Width: 0.8 **Interior Wall Width:** 0.6

Interpretation: House?

	Length	Width	Roofed?
Room 1	7.1 m	1.7 m	Roofed
Room 2	m	m	
Room 3	m	m	
Room 4	m	m	
Room 5	m	m	
Room 6	m	m	
Room 7	m	m	

Total Roofed Area: 11.4 sq. m **Total Area:** 11.4+ sq. m

Layout Description: Possibly a semi-integrated structure? Preserved room fully enclosed in SS3-2.

Significant Finds: N/A

Features: Hearth beneath wall 421 (SS1-1/3); Cobbled floor (SS3-1 through SS3-3); Stone alignment bisecting room; Doorway in wall 412 blocked in SS3-2.

Notes: Constructed atop Structure SS1's eastern activity area (SS1-1 through SS1-3).

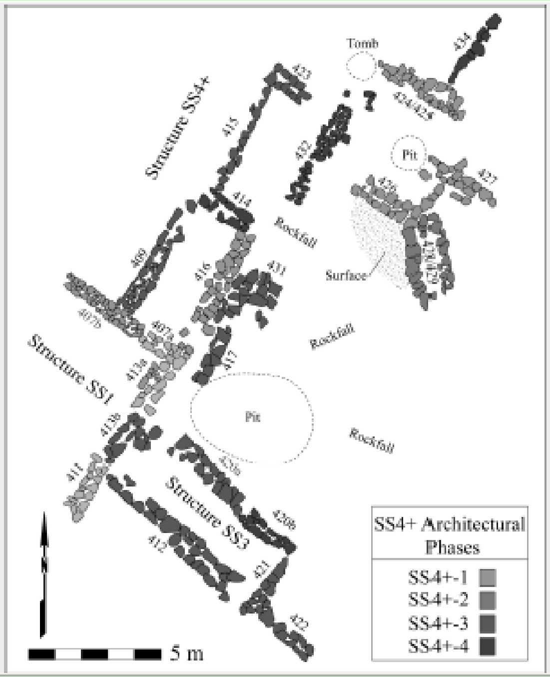
Plate C.3: Settlement Slope, Structure SS3.

Site: Settlement Slope

Structure Number: SS4

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: N/A m **Width:** N/A m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 4

Number of Rooms: 4?

Exterior Wall Width: 0.8

Interior Wall Width: 0.6

Interpretation: House?

	Length		Width		Roofed?
Room 1	4.6	m	1.8	m	Roofed
Room 2	4.3	m	2.1	m	Roofed
Room 3	3.8+	m	1.5	m	Roofed
Room 4	3.8+	m	1.6	m	Roofed
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: N/A sq. m **Total Area:** N/A sq. m

Layout Description: Possible semi-integrated structure in SS4+-1; Walled courtyard possibly added in SS4+-2; Unclear layout in SS4+-3 and SS4+-4.

Significant Finds: Painted late-Middle Umm an-Nar pottery on exterior surface (SS4+-2).

Features: Exterior surface (SS4+-2); Wadi Sûq tomb cutting wall 424/425 (SS4+-5); Late Bronze Age pit cutting southern end of wall 417.

Notes: Not a true structure but the fragments of several structures. Southeastern portion of building(s) obscured by significant pitting and rockfall.

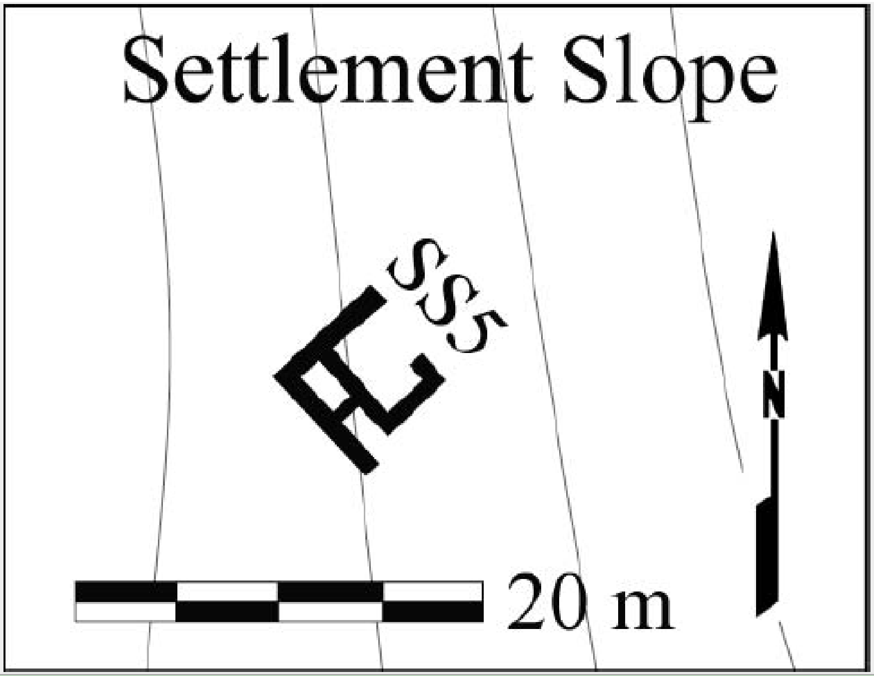
Plate C.4: Settlement Slope, Structure SS4+.

Site: Settlement Slope

Structure Number: SS5

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 6.8 m Width: 6.6 m

Construction Method: Dry Stone Masonry

Number of Construction Phases: N/A

Number of Rooms: 3

Exterior Wall Width: 0.8

Interior Wall Width: 0.6

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	4.4	m	2.4	m	Roofed
Room 2	2.7	m	1.5	m	Roofed
Room 3	2.6	m	1.1	m	Roofed
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 17.5 sq. m Total Area: 17.5 sq. m

Layout Description: Small, rectilinear building.

Significant Finds: N/A

Features: N/A

Notes: Situated on a relatively isolated, flat patch of hillside.

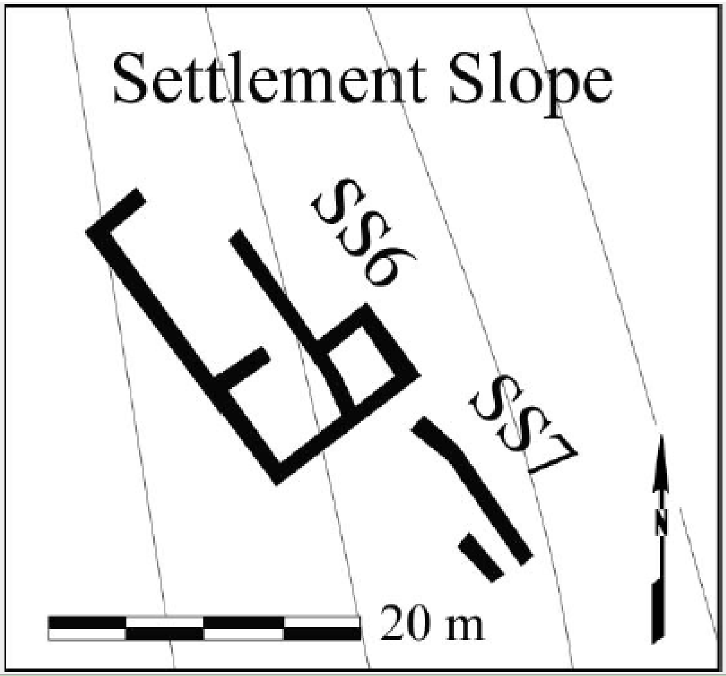
Plate C.5: Settlement Slope, Structure SS5.

Site: Settlement Slope

Structure Number: SS6

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 21.8 m **Width:** 12.2 m

Construction Method: Dry Stone Masonry

Number of Construction Phases: N/A

Number of Rooms: 3

Exterior Wall Width: 0.9

Interior Wall Width: 0.6

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	12.6	m	6.0	m	Uncertain
Room 2	6.3	m	5.8	m	Roofed
Room 3	4.5	m	3.6	m	Roofed
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 52.7 sq. m **Total Area:** 132.1 sq. m

Layout Description: Large, rectilinear building with several interior rooms.

Significant Finds: N/A

Features: N/A

Notes: Karen Frifelt excavated a test trench through the center of this building (Site 1155) and found its interior contexts destroyed by erosion.

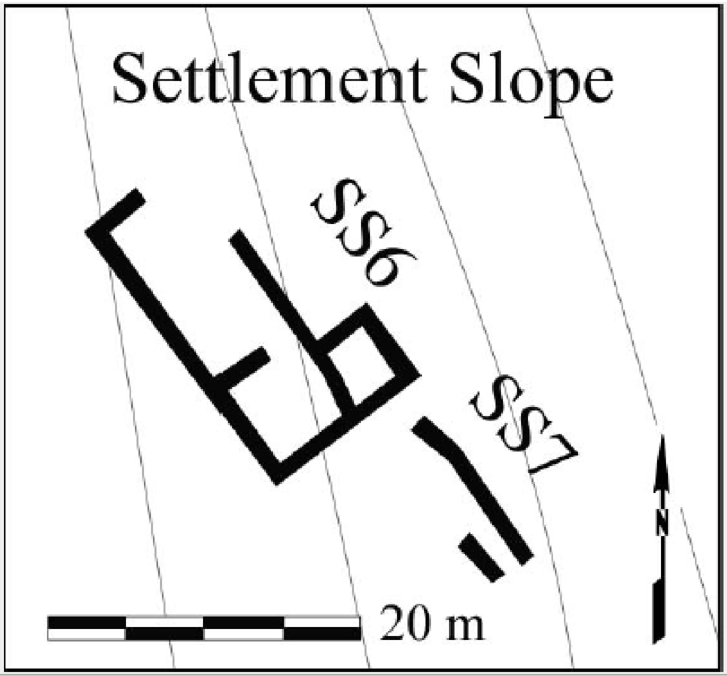
Plate C.6: Settlement Slope, Structure SS6.

Site: Settlement Slope

Structure Number: SS7

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 11.6 m Width: 3.3 m

Construction Method: Dry Stone Masonry

Number of Construction Phases: N/A

Number of Rooms: 1

Exterior Wall Width: 0.8

Interior Wall Width: 0.6

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	11.6	m	1.9	m	Uncertain
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: ? sq. m Total Area: 31.3 sq. m

Layout Description: Uncertain.

Significant Finds: N/A

Features: N/A

Notes: Possibly an extension of Structure SS6 or a later addition to a structural compound.

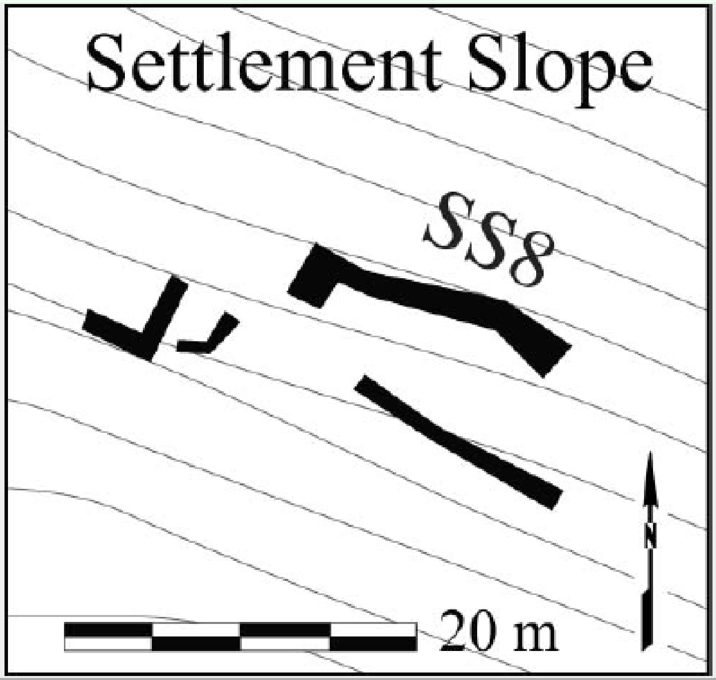
Plate C.7: Settlement Slope, Structure SS7.

Site: Settlement Slope

Structure Number: SS8

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length:	20.2 m	Width:	8.9 m
Construction Method:	Dry Stone Masonry		
Number of Construction Phases:	N/A	Number of Rooms:	1+
Exterior Wall Width:	1.3	Interior Wall Width:	0.6
Interpretation:	Uncertain		

	Length	Width	Roofed?
Room 1	17.8 m	6.4 m	Uncertain
Room 2	m	m	
Room 3	m	m	
Room 4	m	m	
Room 5	m	m	
Room 6	m	m	
Room 7	m	m	

Total Roofed Area: ? sq. m Total Area: 96.6 sq. m

Layout Description: Roughly rectilinear structure with two or more rooms.

Significant Finds: N/A

Features: N/A

Notes: Southeaster-most known surviving structure on Settlement Slope hillside.

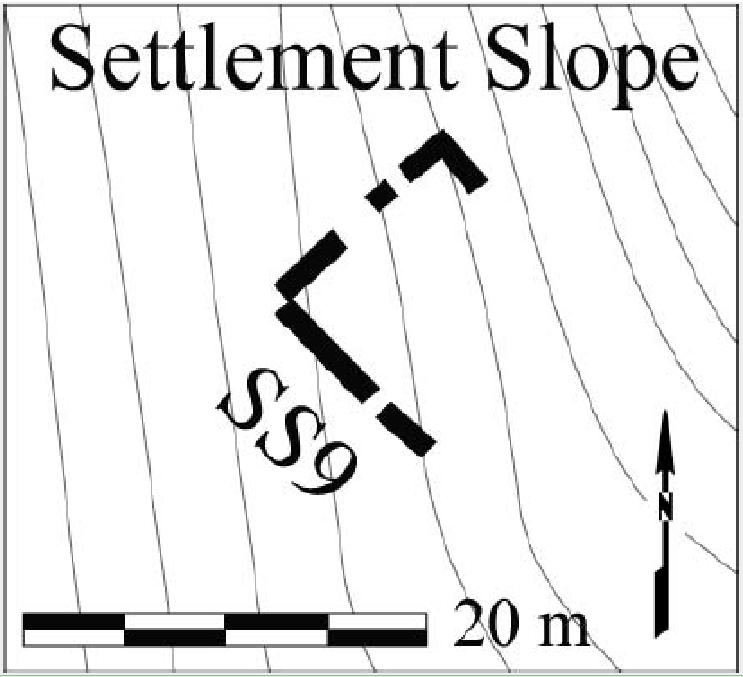
Plate C.8: Settlement Slope, Structure SS8.

Site: Settlement Slope

Structure Number: SS9

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 12.5 m Width: 11.3 m

Construction Method: Dry Stone Masonry

Number of Construction Phases: N/A

Number of Rooms: 1

Exterior Wall Width: 0.9

Interior Wall Width: N/A

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	11.1	m	9.9	m	Unroofed
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: N/A sq. m Total Area: 110.4 sq. m

Layout Description: Large, walled enclosure.

Significant Finds: N/A

Features: N/A

Notes: Possibly an animal enclosure (Thornton personal communication).

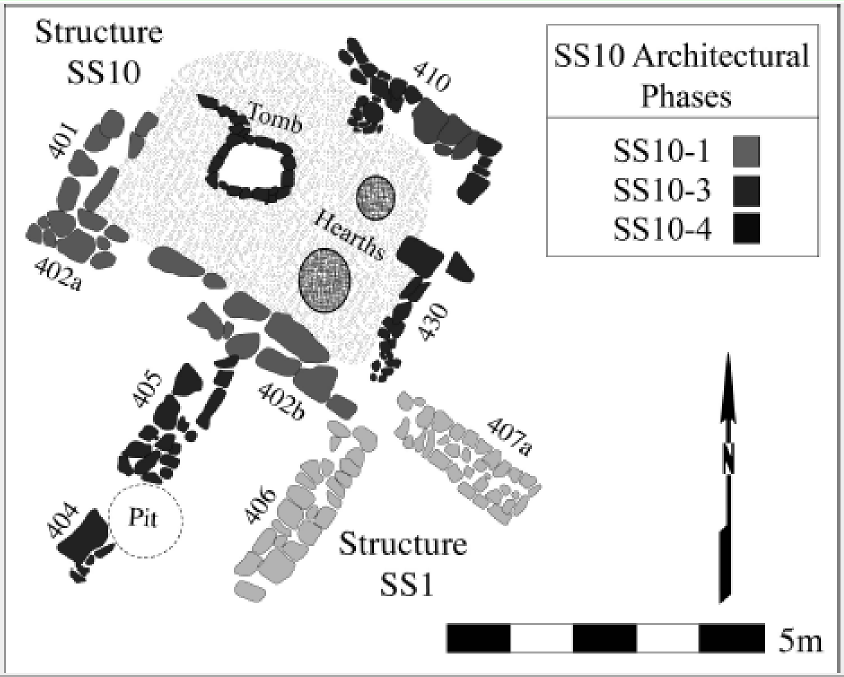
Plate C.9: Settlement Slope, Structure SS9.

Site: Settlement Slope

Structure Number: SS10

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 6.1 m **Width:** 5.0 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 2 **Number of Rooms:** 1

Exterior Wall Width: 0.9 **Interior Wall Width:** 0.4

Interpretation: Workshop

	Length		Width		Roofed?
Room 1	4.9	m	3.3	m	Roofed
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 16.2 sq. m **Total Area:** 16.2 sq. m

Layout Description: Roughly square room centered on metallurgical pits.

Significant Finds: Copper prills and slag.

Features: Two hearths containing copper slag (SS10-1); Clay floor (SS10-1); Wadi Sûq tomb (SS10-4).

Notes: Possibly associated with the Structure SS1 house to southeast.

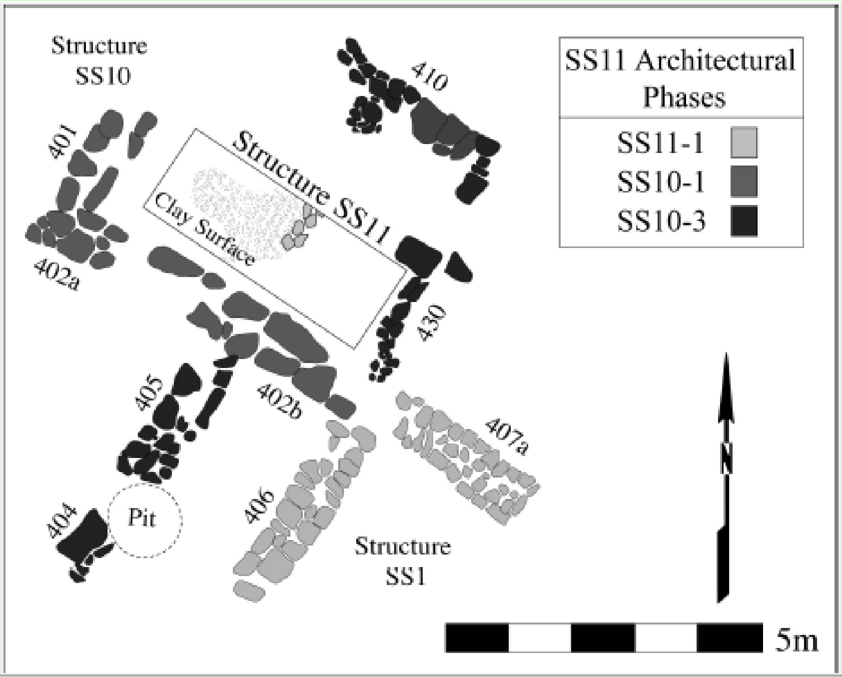
Plate C.10: Settlement Slope, Structure SS10.

Site: Settlement Slope

Structure Number: SS11

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: ? m **Width:** ? m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 1

Number of Rooms: 1?

Exterior Wall Width: 0.4

Interior Wall Width: N/A

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	?	m	?	m	Uncertain
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: N/A sq. m **Total Area:** N/A sq. m

Layout Description: Uncertain.

Significant Finds: Chert blades on clay surface.

Features: Clay floor (SS11-1).

Notes: Stone wall associated with a greenish-yellow clay surface.

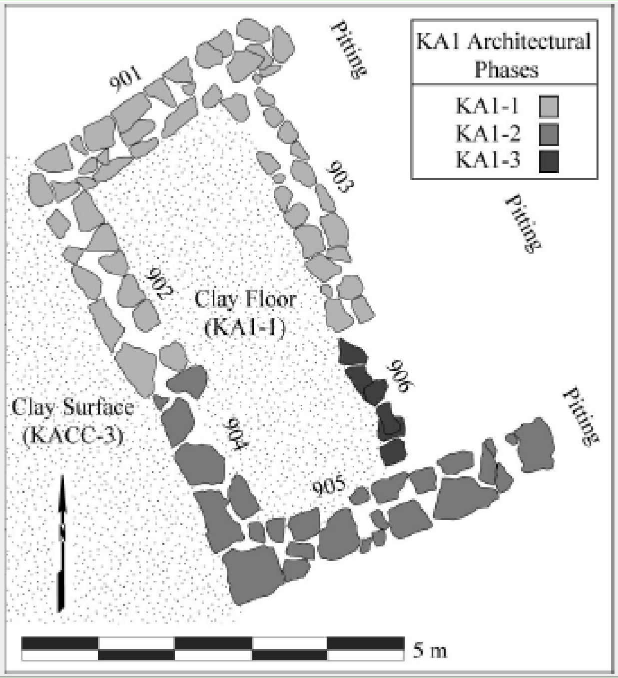
Plate C.11: Settlement Slope, Structure SS11.

Site: Khafaji

Structure Number: KA1

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 7.0 m Width: 4.3 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 3 Number of Rooms: 2

Exterior Wall Width: 0.7 Interior Wall Width: 0.5

Interpretation: House

	Length		Width		Roofed?
Room 1	5.1	m	1.9	m	Roofed
Room 2	5.6	m	+1.0	m	Uncertain
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 15(?) sq. m Total Area: 17+ sq. m

Layout Description: Semi-integrated; western room fully enclosed in KA1-3.

Significant Finds: Two grinding stones and a mortar.

Features: Clay floor (KA1-1).

Notes: The interior was filled with an ashy gray clay that contained little material culture.

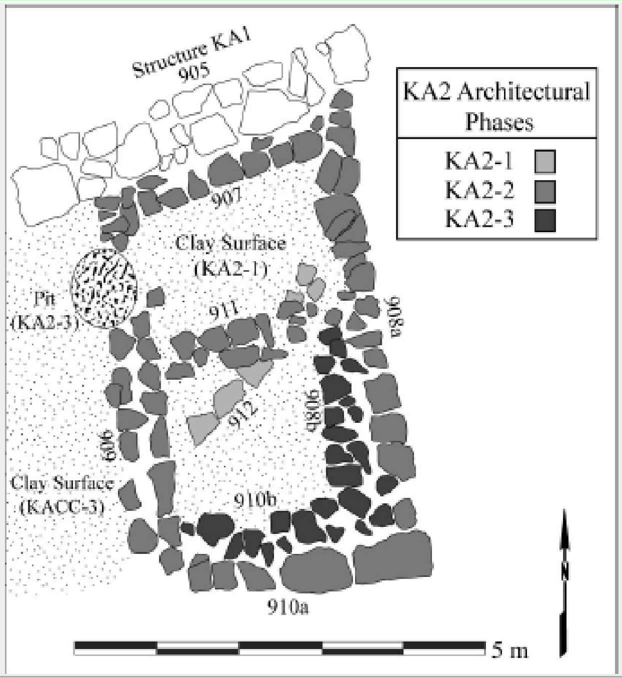
Plate C.12: Khafaji, Structure KA1.

Site: Khafaji

Structure Number: KA2

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 5.9 m **Width:** 3.7 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 3 **Number of Rooms:** 2

Exterior Wall Width: 0.8 **Interior Wall Width:** 0.4

Interpretation: Storage structure

	Length		Width		Roofed?
Room 1	2.1	m	1.5	m	Roofed
Room 2	1.8	m	1.7	m	Roofed
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 7.8 sq. m **Total Area:** 7.8 sq. m

Layout Description: Slightly irregular, rectilinear structure.

Significant Finds: N/A

Features: Pit cutting wall 909 (KA2-3).

Notes: The interior of the building was filled with an ashy gray clay that contained little material culture.
Exterior wall foundations constructed of unusually large stones.

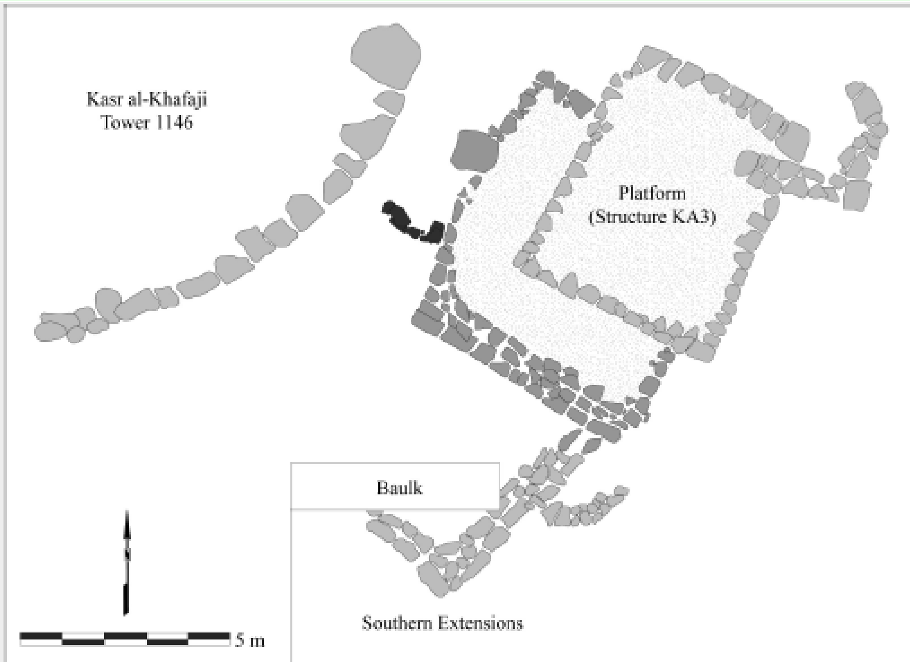
Plate C.13: Khafaji, Structure KA2.

Site: Khafaji

Structure Number: KA3

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 8.9 m **Width:** 6.5 m

Construction Method: Mudbrick on Stone

Number of Construction Phases: 2 **Number of Rooms:** 0

Exterior Wall Width: 1.0 **Interior Wall Width:** 0.7

Interpretation: Monumental platform

	Length		Width		Roofed?
Room 1	N/A	m	N/A	m	Unroofed
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: N/A sq. m **Total Area:** 58.8 sq. m

Layout Description: Square platform expanded in KA3-2 with an 'L-shaped' extension added to its southern and western sides.

Significant Finds: Fine Early Umm an-Nar ceramics found near southeastern corner.

Features: Stone ramp running over northeastern corner, allowing access to platform surface.

Notes: Platform foundations climb up side of tower foundation mound. Mudbrick preserved within stone foundations. Superstructure does not survive.

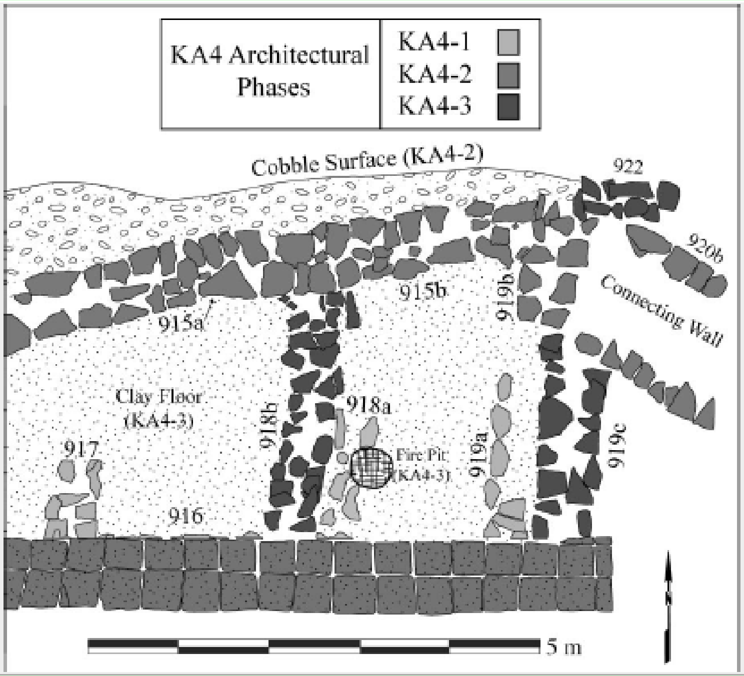
Plate C.14: Khafaji, Structure KA3.

Site: Khafaji

Structure Number: KA4

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 6.8 m **Width:** 4.6 m

Construction Method: Mudbrick on Stone

Number of Construction Phases: 3 **Number of Rooms:** 3

Exterior Wall Width: 0.7 **Interior Wall Width:** 0.6

Interpretation: House

	Length		Width		Roofed?
Room 1	3.0	m	2.2	m	Roofed
Room 2	2.6	m	2.3	m	Roofed
Room 3	2.0	m	+0.7	m	Roofed
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 13.2 sq. m **Total Area:** 13.2 sq. m

Layout Description: Irregular, semi-integrated.
Eastern room fully enclosed in KA4-3.

Significant Finds: Painted jar with snake design found in eastern room (KA4-3).

Features: Fire pit in eastern room (KA4-3).
Clay floor (KA4-3)
Mudbrick superstructure visible on wall 916 (KA4-3).

Notes: Cobbled surface runs along exterior face of wall 915b (KA4-2) – possibly a street.

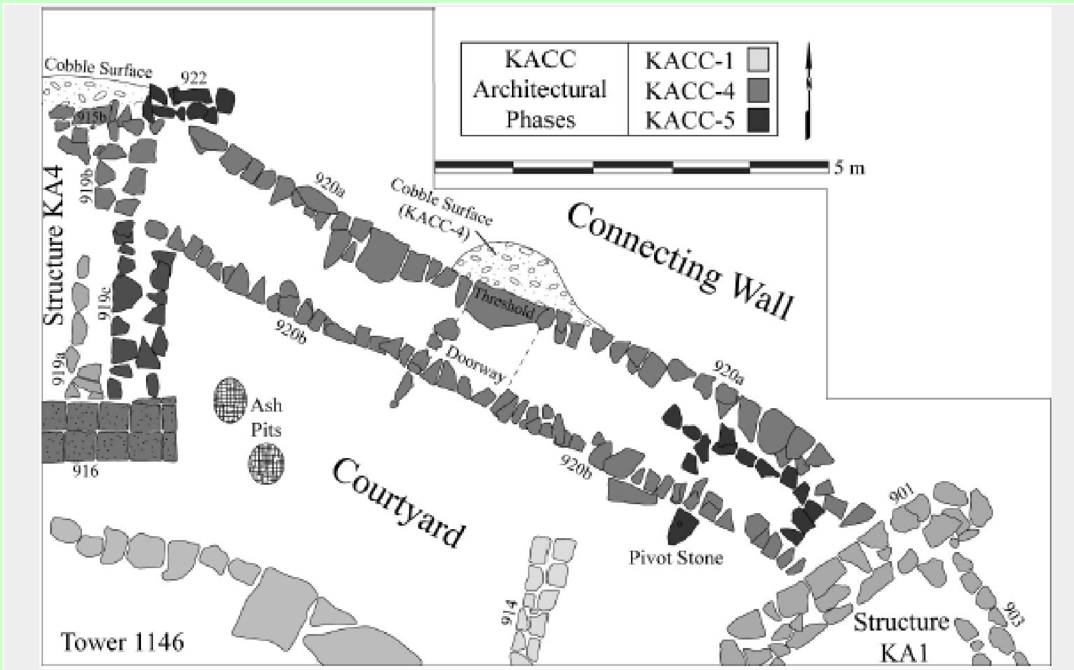
Plate C.15: Khafaji, Structure KA4.

Site: Khafaji

Structure Number: Connecting Wall

Field Research Method: Excavation

Building Plan:



Building Overview:

Length: 10.0 m Width: 1.7 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: 2 Number of Rooms: 0

Exterior Wall Width: 1.6 Interior Wall Width: N/A

Interpretation: Wall added to enclose the courtyard

	Length		Width		Roofed?
Room 1	N/A	m	N/A	m	Unroofed
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 0 sq. m Total Area: 16.9 sq. m

Layout Description: Long, linear feature. Faced limestone exterior with packed mud and rubble interior.

Significant Finds: Middle Umm an-Nar ceramics found in doorway.

Features: Threshold stone marking KACC-4 doorway.
Cobbled surface along exterior face.
Displaced pivot stone suggesting a door.

Notes: Not a true ‘structure.’ Stretches between KA1 and KA4, creating the enclosed Courtyard.

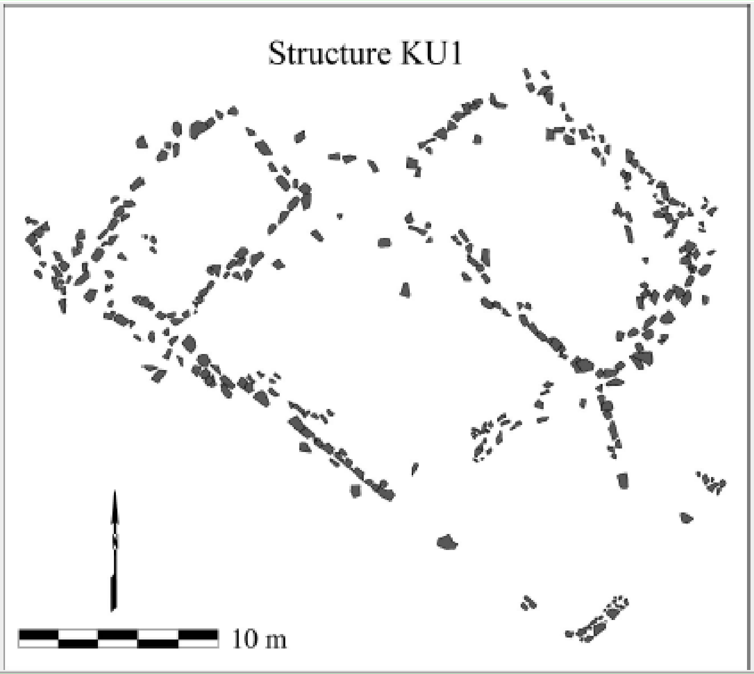
Plate C.16: Khafaji Connecting Wall.

Site: Khutm

Structure Number: KU1

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 35.3 m **Width:** 20.8 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: N/A

Number of Rooms: 4

Exterior Wall Width: 1.1

Interior Wall Width: 0.7

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	9.4	m	8.9	m	Uncertain
Room 2	9.1	m	4.9	m	Uncertain
Room 3	14.3	m	11.0	m	Unroofed
Room 4	12.9	m	8.1	m	Uncertain
Room 5	11.1	m	9.2	m	Uncertain
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: ? sq. m **Total Area:** 423 sq. m

Layout Description: Agglomerative compound arranged around a large, rectangular, central courtyard.

Significant Finds: N/A

Features: N/A

Notes: Northeastern 'room' possibly a semi-integrated structure.
Northwestern 'room' near to bulldozer cut.

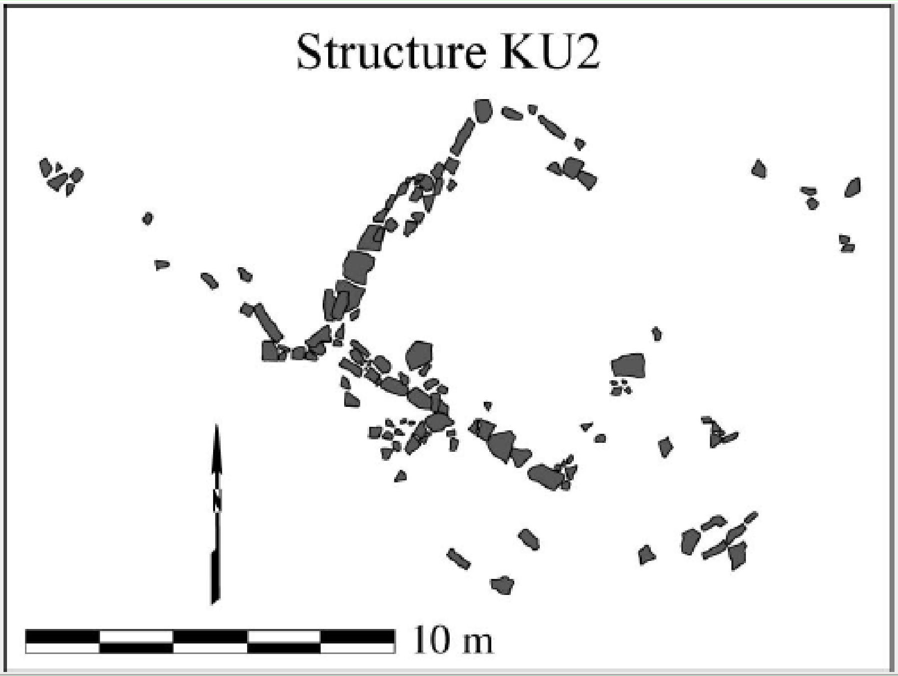
Plate C.17: Khutm, Structure KU1.

Site: Khutm

Structure Number: KU2

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 22.2 m **Width:** 19.5 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: N/A **Number of Rooms:** 2

Exterior Wall Width: 1.0 **Interior Wall Width:** 0.7

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	6.47	m	6.45	m	Roofed
Room 2	9.30	m	4.54	m	Uncertain
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 39.2 sq. m **Total Area:** 47.8 sq. m

Layout Description: Uncertain

Significant Finds: N/A

Features: N/A

Notes: Only one clear room preserved at surface level.

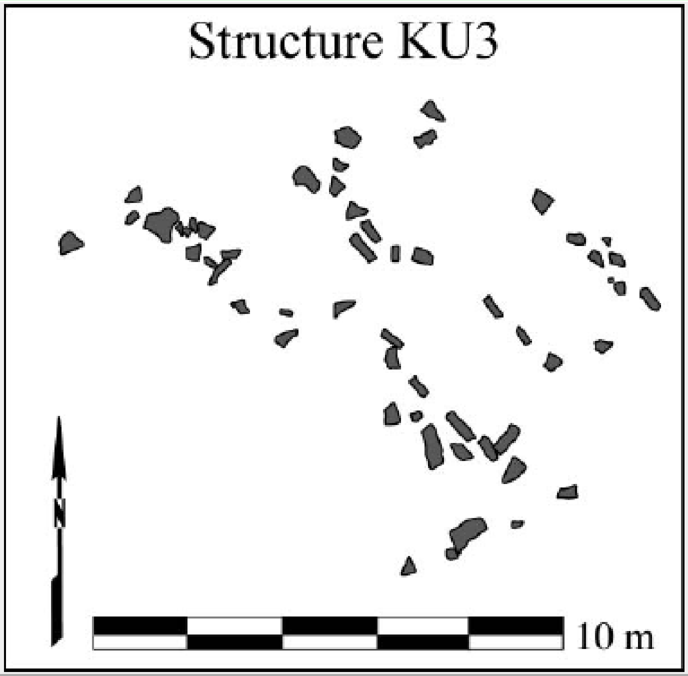
Plate C.18: Khutm, Structure KU2.

Site: Khutm

Structure Number: KU3

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 12.6 m **Width:** 7.7 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: N/A

Number of Rooms: 2

Exterior Wall Width: 0.8

Interior Wall Width: 0.6

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	5.7	m	1.8	m	Roofed
Room 2	8.8	m	1.7	m	Roofed
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 22.2 sq. m **Total Area:** 22.2 sq. m

Layout Description: Uncertain

Significant Finds: N/A

Features: N/A

Notes: Two small, rectangular rooms running parallel to the slope.

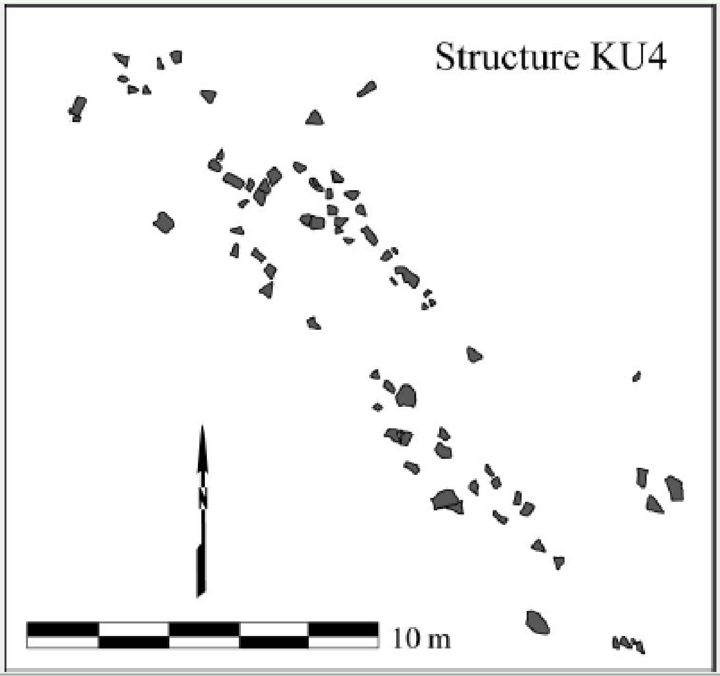
Plate C.19: Khutm, Structure KU3.

Site: Khutm

Structure Number: KU4

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 17.5 m **Width:** 5.1 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: N/A **Number of Rooms:** 1

Exterior Wall Width: 0.9 **Interior Wall Width:** 0.6

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	14.9	m	1.8	m	Roofed
Room 2		m		m	
Room 3		m		m	
Room 4		m		m	
Room 5		m		m	
Room 6		m		m	
Room 7		m		m	

Total Roofed Area: 26.1 sq. m **Total Area:** 26.1 sq. m

Layout Description: Uncertain.

Significant Finds: N/A

Features: N/A

Notes: Only one clear room preserved at surface level, oriented parallel to the slope.

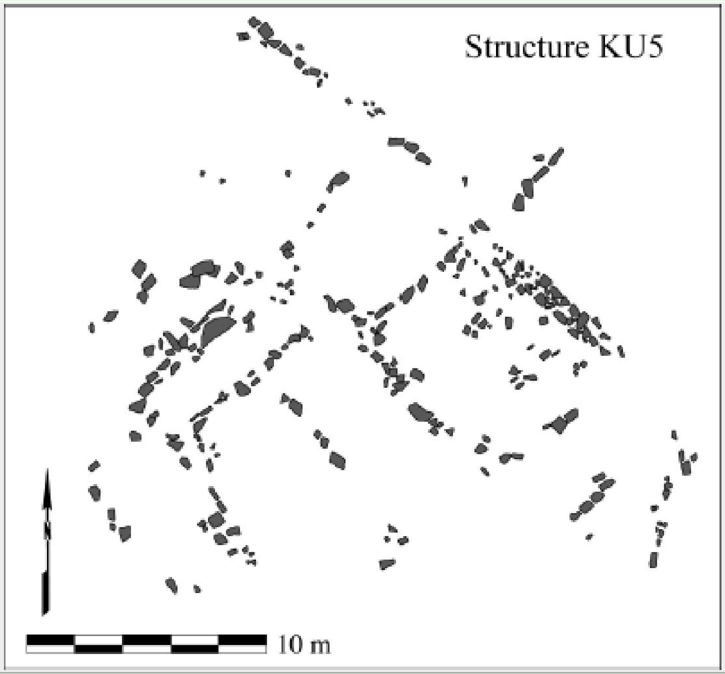
Plate C.20: Khutm, Structure KU4.

Site: Khutm

Structure Number: KU5

Field Research Method: Ground Survey

Building Plan:



Building Overview:

Length: 25.4 m Width: 24.2 m

Construction Method: Stone and Mud Mortar

Number of Construction Phases: N/A

Number of Rooms: 7?

Exterior Wall Width: 1.2

Interior Wall Width: 0.8

Interpretation: Uncertain

	Length		Width		Roofed?
Room 1	5.8	m	4.3	m	Roofed
Room 2	6.6	m	5.9	m	Uncertain
Room 3	4.7	m	1.5	m	Roofed
Room 4	9.2	m	3.3	m	Roofed
Room 5	8.1	m	4.5	m	Roofed
Room 6	6.9	m	2.4	m	Roofed
Room 7		m		m	

Total Roofed Area: 172 sq. m Total Area: 223+ sq. m

Layout Description: Agglomerative compound. Northeastern most component a semi-integrated structure.

Significant Finds: N/A

Features: N/A

Notes: Possibly a walled courtyard space to the north or northwest of structure.

Plate C.21: Khutm, Structure KU5.

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JENNIFER L. SWERIDA
Curriculum Vitae

413 Garretson Rd. **Phone (732) 996-7066**
Bridgewater, NJ 09908 USA **Email: jswerida@gmail.com**

EDUCATION:

2017 Johns Hopkins University; Department of Near Eastern Studies; Ph.D. in Archaeology
Dissertation: Housing the Umm an-Nar: The Settlements and Houses of Bat
Advisor: Glenn Schwartz

2010 University of Pennsylvania; Department of Near Eastern Languages and Civilizations; MA in Archaeology
Thesis: The Terracottas of Diqdiqqah
Advisor: Richard Zettler

2008 Boston University; BA in Archaeology & Art History
Thesis: The Architecture of Hasanlu Tepe, Period V (Late Bronze/Early Iron Age), Iran
Advisors: Michael Danti & Hilda Wistervelt

PUBLICATIONS:

"The Small Finds Of Oğlanqala." In *Excavations at Oğlanqala: 2008-2011*, eds. L. Ristvet & H. Gopnik. University of Pennsylvania Press. Forthcoming.

"Oğlanqala, Period I." In *Excavations at Oğlanqala: 2008-2011*, eds. L. Ristvet & H. Gopnik. University of Pennsylvania Press. Forthcoming.

"Discovery and Excavations of an Aksumite Town, Beita Semati (Ethiopia)." With M. Harrower, C. Perlingieri, I. Dimitru, S. Nathan, J Bongers, H. Woldekiros, L. Poolman, C. Pohl, S. Brandt, & E. Peterson. *Antiquity.* Forthcoming.

"The Umm an-Nar Settlements and Structures of Bat: Composition, Space, and Society." In *Beyond the Tombs and Towers: domestic architecture of the Umm an-Nar period in Eastern Arabia*, ed. S. Döpper. In Press.

"Mortary Finds of the Qizqala Kurgans." *Naxçıvanda Arxeoloji Tədqiqatlar/ Archaeological Investigations in Azerbaijan.* Naxcivan: Milli Elmlər Akademiyası, 2016.

"Arabian Monuments: 3D Modeling a Bronze Age Umm an-Nar Tower of Ancient Magan (Oman)." With M. Harrower, K. O'Meara, J. Basile, C. Hickman, I. Dumitru, J. Bongers, C. Bailey, & E. Fieldhouse. *World Archaeology* 46/1:43-62.

PAPERS DELIVERED:

Invited Talks:

"The Umm an-Nar Settlements and Structures of Bat: Composition, Space, and Society." Presented in "Beyond the Towers and Tombs: Domestic Architecture of the Umm an-Nar Period in Eastern Arabia." University of Leiden. October 2016.

"Mortuary Finds of the Qizqala Kurgans." Presented at the Annual Meeting of the Naxcivan Archaeological Academy of Science. Naxcivan City, Azerbaijan. July 2016.

Conference Talks:

"Transhumance, Remembrance, and Community in the Highland Funerary Spaces of the Şərur Valley, Azerbaijan." With S. Nugent. Eurasian Archaeology Conferences, Cornell University, NY. October 2017.

"This is the End: An Integrative Approach to Mobility in Monumental Burials." With S. Fishman, S. Nugent, & H. Lau. South Caucasus Colloquium, ISAW, NYU, New York, December 2015.

"Searching for the Umm an-Nar 'Domestic:' An Architectural Typology from Bat." American Schools of Oriental Research Annual Meeting, Atlanta, GA, November 2015.

"Neighborhood and Identity in the Land of Magan – The View from Bat, Oman." American Institute of Archaeology Annual Meeting, New Orleans, LA, January 2015.

"The Umm an-Nar Neighborhood? A New Perspective from Bat, Oman." American Schools of Oriental Research Annual Meeting, San Diego, CA, November 2014.

"The Red Sea and the Persian/Arabian Gulf: Long-Term Conduits of Ancient Interchange and Hybridity." With M. Harrower, S. Nathan, I. Dumitru, & J. Bongers. American Schools of Oriental Research Annual Meeting, Baltimore, MD, November 2013.

"Life, Death, and Continuity of War: World War I in an Iron Age Context." American Schools of Oriental Research Annual Meeting, Chicago, IL, November 2012.

AWARDS & GRANTS:

2015 Dean's Teaching Fellowship, Johns Hopkins University.

2012 Platt Fellowship, American Society of Oriental Research.

2011 Schafer Research Award in Near Eastern Studies, Johns Hopkins University.

2010 Graduate Fellowship, Johns Hopkins University.

2009 GAPSA Travel Grant, University of Pennsylvania.

2004 Dean’s Scholarship, Boston University.

2004 Historic Village at Allaire Academic Scholarship.

TEACHING EXPERIENCE:

Monmouth University (Department of History and Anthropology)

“Constructing Ancient History” (Fall 2017; undergraduate course under development, adjunct professor)

“Origins of Western Civilization” (Spring 2017; undergraduate course, adjunct professor)

“Empires in History” (Fall 2016; undergraduate course, adjunct professor)

Johns Hopkins University (Department of Near Eastern Studies)

“Ancient Homes and Houses” (Fall 2015; undergraduate course, instructor)

“Introduction to Near Eastern Archaeology” (Spring 2013; undergraduate course, guest lecturer)

“Introduction to Archaeology” (Fall 2013; undergraduate course, teaching assistant)

“Introduction to Archaeology” (Fall 2012; undergraduate course, teaching assistant)

Institute of Field Research Field School

“Bat Archaeological Project” (Spring 2012; undergraduate field course, instructor & program coordinator)

EXCAVATION EXPERIENCE:

Naxçivan Archaeological Project, Şərur Province, Azerbaijan

2015-Present Assistant project director

2009-Present Registrar

2014 Site director

2009-2013 Field supervisor

Bat Archaeological Project, Ad-Dhahirah Province, Oman

2015-Present Assistant project director & IFR filed school instructor/coordinator

2013-2014 Site director

2010, 2012 Field supervisor

Lerik Archaeological Project, Lerik Province, Azerbaijan

2016 Field supervisor & survey team member

Kurd Qaberstan Archaeological Project, Erbil Province, Iraq

2013-2014 Field supervisor

Archaeological Water Histories of Oman (ARWHO) Project, Ad-Dhahirah Province, Oman

2011-2014 Survey team member, ceramics & material culture analyst

Southern Red Sea Archaeological Histories Project, Tigray Province, Ethiopia

2012 Site director & ceramics analyst

2011 Excavation supervisor & ceramics analyst

Social, Spatial, and Bioarchaeological Histories of Ancient Oman Project, Ad-Dhahirah Province, Oman

2011 Survey team member & ceramics analyst

Tell es-Sweyhat Archaeological Project, Raqqa Province, Syria

2005-2008 Field supervisor

PROFESSIONAL EXPERIENCE:

Monmouth University Jockey Hollow Field School, Morris County, NJ

2017 Instructor & GIS specialist

Institute of Filed Research, Los Angeles, CA

2015 Field school instructor & coordinator

Hasanlu Publication Project, University of Pennsylvania, PA

2006-2008 Research assistant

2008-2010 Lab and research assistant

Historic Village at Allaire, Monmouth County, NJ

2005-2010 Field manager, historical interpreter, school tour guide, & volunteer mentor

2007-2008 Collections manager

LANGUAGES:

French (intermediate reading, speaking, writing)

German (intermediate reading, speaking, writing)

Standard Arabic (basic reading, speaking)

Ancient Akkadian (advanced reading)

PROFESSIONAL AFFILIATIONS:

American Schools of Oriental Research

Society of American Archaeology

American Institute of Archaeology

Institute of Field Research